

## 0000 2237 Eukalyptusöl

Nummer der Fassung: V 2.0  
 Ersetzt Fassung vom: 12.09.2018 (V 1)

Überarbeitet am: 13.09.2018

**ABSCHNITT 1: Bezeichnung des Stoffs beziehungsweise des Gemischs und des Unternehmens**
**1.1 Produktidentifikator**

Bezeichnung des Stoffs	<b>Eukalyptusöl</b>
Registrierungsnummer (REACH)	01-2119978250-37-0002
EG-Nummer	283-406-2
CAS-Nummer	8000-48-4, 84625-32-1
Artikelnummer	0000 2237

**1.2 Relevante identifizierte Verwendungen des Stoffs oder Gemischs und Verwendungen, von denen abgeraten wird**

Relevante identifizierte Verwendungen	Gewerbliche Verwendung
Verwendungen, von denen abgeraten wird	Das Produkt ist nicht zur Verwendung durch Verbraucher vorgesehen.

**1.3 Einzelheiten zum Lieferanten, der das Sicherheitsdatenblatt bereitstellt**

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 (Regulatory Affairs)

**1.4 Notrufnummer**

Notfallinformationsdienst +49 (0) 700 24 112 112 (JVC)

Giftnotzentrale			
Land	Name	Postleitzahl/Ort	Telefon
Österreich	Vergiftungsinformationszentrale (Poisons Information Centre)	1090 Wien	+43 1 406 43 43
Schweiz	Schweizerisches Toxikologisches Informationszentrum	8032 Zürich	145 (CH) / +41 442515151 (#CH)

**ABSCHNITT 2: Mögliche Gefahren**
**2.1 Einstufung des Stoffs oder Gemischs**

Einstufung gemäß Verordnung (EG) Nr. 1272/2008 (CLP)

Abschnitt	Gefahrenklasse	Gefahrenklasse und -kategorie	Gefahrenhinweis
2.6	entzündbare Flüssigkeiten	Flam. Liq. 3	H226
3.2	Ätz-/Reizwirkung auf die Haut	Skin Irrit. 2	H315
3.4S	Sensibilisierung der Haut	Skin Sens. 1	H317

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Abschnitt	Gefahrenklasse	Gefahrenklasse und -kategorie	Gefahrenhinweis
3.10	Aspirationsgefahr	Asp. Tox. 1	H304
4.1C	gewässergefährdend (chronische aquatische Toxizität)	Aquatic Chronic 2	H411

Voller Wortlaut der Abkürzungen in ABSCHNITT 16.

### 2.2 Kennzeichnungselemente

Kennzeichnung gemäß Verordnung (EG) Nr. 1272/2008 (CLP)

- Signalwort Gefahr

- Piktogramme

GHS02, GHS07,  
GHS08, GHS09



- Gefahrenhinweise

H226 Flüssigkeit und Dampf entzündbar.  
H304 Kann bei Verschlucken und Eindringen in die Atemwege tödlich sein.  
H315 Verursacht Hautreizungen.  
H317 Kann allergische Hautreaktionen verursachen.  
H411 Giftig für Wasserorganismen, mit langfristiger Wirkung.

- Sicherheitshinweise

P210 Von Hitze, heißen Oberflächen, Funken, offenen Flammen sowie anderen Zündquellenarten fernhalten. Nicht rauchen.  
P261 Einatmen von Staub/Rauch/Gas/Nebel/Dampf/Aerosol vermeiden.  
P273 Freisetzung in die Umwelt vermeiden.  
P280 Schutzhandschuhe/Schutzkleidung/Augenschutz/Gesichtsschutz tragen.  
P301+P310 BEI VERSCHLUCKEN: Sofort GIFTINFORMATIONSZENTRUM/Arzt anrufen.  
P331 KEIN Erbrechen herbeiführen.  
P333+P313 Bei Hautreizung oder -ausschlag: Ärztlichen Rat einholen/ärztliche Hilfe hinzuziehen.  
P362+P364 Kontaminierte Kleidung ausziehen und vor erneutem Tragen waschen.  
P370+P378 Bei Brand: Sand, Kohlendioxid oder Pulverlöschmittel zum Löschen verwenden.  
P391 Verschüttete Mengen aufnehmen.  
P403+P235 An einem gut belüfteten Ort aufbewahren. Kühl halten.  
P501 Inhalt/Behälter industrieller Verbrennungsanlage zuführen.

### 2.3 Sonstige Gefahren

Ergebnisse der PBT- und vPvB-Beurteilung

Nach den Ergebnissen seiner Bewertung ist dieser Stoff weder ein PBT- noch ein vPvB-Stoff.

## ABSCHNITT 3: Zusammensetzung/Angaben zu Bestandteilen
























### 3.1 Stoffe

Stoffname	Eukalyptusöl (UVCB)
Identifikatoren	
REACH Reg.-Nr.	01-2119978250-37-0002
CAS-Nr.	8000-48-4, 84625-32-1
EG-Nr.	283-406-2

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Verunreinigungen und Zusatzstoffe, Einstufung gem. GHS				
Stoffname	Identifikator	Gew.-%	Einstufung gem. GHS	Piktogramme
Eukalyptol (1.8-Cineol)	CAS-Nr. 470-82-6  EG-Nr. 207-431-5	75 – < 90	Flam. Liq. 3 / H226 Skin Sens. 1B / H317	 
d-Limonen	CAS-Nr. 5989-27-5 68606-81-5  EG-Nr. 227-813-5	5 – < 10	Flam. Liq. 3 / H226 Skin Irrit. 2 / H315 Skin Sens. 1 / H317 Asp. Tox. 1 / H304 Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410	   
gamma-Terpinen	CAS-Nr. 99-85-4  EG-Nr. 202-794-6	5 – < 10	Flam. Liq. 3 / H226 Asp. Tox. 1 / H304	 
p-Cymol	CAS-Nr. 99-87-6  EG-Nr. 202-796-7	1 – < 5	Flam. Liq. 3 / H226 Asp. Tox. 1 / H304 Aquatic Chronic 2 / H411	  
alpha-Pinen	CAS-Nr. 80-56-8  EG-Nr. 201-291-9	1 – < 5	Flam. Liq. 3 / H226 Acute Tox. 4 / H302 Skin Irrit. 2 / H315 Skin Sens. 1 / H317 Asp. Tox. 1 / H304 Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410	   
Myrcen	CAS-Nr. 123-35-3  EG-Nr. 204-622-5	< 1	Flam. Liq. 3 / H226 Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 Asp. Tox. 1 / H304 Aquatic Acute 1 / H400 Aquatic Chronic 2 / H411	   
beta-Pinen	CAS-Nr. 127-91-3 18172-67-3  EG-Nr. 204-872-5 242-060-2	< 1	Flam. Liq. 3 / H226 Skin Irrit. 2 / H315 Skin Sens. 1B / H317 Asp. Tox. 1 / H304 Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410	   

Voller Wortlaut der Abkürzungen in ABSCHNITT 16.

### ABSCHNITT 4: Erste-Hilfe-Maßnahmen

#### 4.1 Beschreibung der Erste-Hilfe-Maßnahmen

##### Allgemeine Anmerkungen

Betroffenen nicht unbeaufsichtigt lassen. Verunglückten aus der Gefahrenzone entfernen. Betroffenen ruhig lagern, zudecken und warm halten. Beschmutzte, getränkte Kleidung sofort ausziehen. Bei Auftreten von Beschwerden oder in Zweifelsfällen ärztlichen Rat einholen. Bei Bewusstlosigkeit stabile Seitenlage anwenden und nichts über den Mund verabreichen.

##### Nach Inhalation

Bei unregelmäßiger Atmung oder Atemstillstand sofort ärztlichen Beistand suchen und Erste-Hilfe-Maßnahmen einleiten. Bei Reizung der Atemwege Arzt aufsuchen. Für Frischluft sorgen.

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Nach Kontakt mit der Haut

Mit viel Wasser und Seife waschen.

Nach Berührung mit den Augen

Eventuell vorhandene Kontaktlinsen nach Möglichkeit entfernen. Weiter ausspülen. Augenlider geöffnet halten und mindestens 10 Minuten lang reichlich mit sauberem, fließendem Wasser spülen.

Nach Aufnahme durch Verschlucken

Mund mit Wasser ausspülen (nur wenn Verunfallter bei Bewusstsein ist). KEIN Erbrechen herbeiführen.

**4.2 Wichtigste akute und verzögert auftretende Symptome und Wirkungen**

Bisher sind keine Symptome und Wirkungen bekannt.

**4.3 Hinweise auf ärztliche Soforthilfe oder Spezialbehandlung**

keine

**ABSCHNITT 5: Maßnahmen zur Brandbekämpfung****5.1 Löschmittel**

Geeignete Löschmittel

Sprühwasser, BC-Pulver, Kohlendioxid (CO<sub>2</sub>)

Ungeeignete Löschmittel

Wasser im Vollstrahl

**5.2 Besondere vom Stoff oder Gemisch ausgehende Gefahren**

Bei unzureichender Belüftung und/oder bei Gebrauch Bildung explosionsfähiger/leichtentzündlicher Dampf-/Luft-Gemische möglich. Lösemitteldämpfe sind schwerer als Luft und breiten sich über dem Boden aus. Mit dem Vorhandensein von brennbaren Stoffen oder Gemischen ist in Bereichen zu rechnen, die von der Lüftung nicht erfasst sind, z.B. unbelüftete tief liegende Bereiche, wie Gruben, Kanäle, Keller und Schächte.

Gefährliche Verbrennungsprodukte

Stickoxide (NO<sub>x</sub>), Kohlenmonoxid (CO), Kohlendioxid (CO<sub>2</sub>)

**5.3 Hinweise für die Brandbekämpfung**

Explosions- und Brandgase nicht einatmen. Löschmaßnahmen auf die Umgebung abstimmen. Löschwasser nicht in Kanäle und Gewässer gelangen lassen. Kontaminiertes Löschwasser getrennt sammeln. Brandbekämpfung mit üblichen Vorsichtsmaßnahmen aus angemessener Entfernung.

**ABSCHNITT 6: Maßnahmen bei unbeabsichtigter Freisetzung****6.1 Personenbezogene Vorsichtsmaßnahmen, Schutzausrüstungen und in Notfällen anzuwendende Verfahren**

Nicht für Notfälle geschultes Personal

Personen in Sicherheit bringen.

Einsatzkräfte

Bei Einwirkungen von Dämpfen, Stäuben, Aerosolen und Gasen ist ein Atemschutzgerät zu tragen.

**6.2 Umweltschutzmaßnahmen**

Das Eindringen in die Kanalisation oder in Oberflächen- und Grundwasser verhindern. Verunreinigtes Waschwasser zurückhalten und entsorgen. Falls der Stoff in offenes Gewässer oder Kanalisation gelangt, zuständige Behörde benachrichtigen.

**6.3 Methoden und Material für Rückhaltung und Reinigung**

Hinweise wie verschüttete Materialien an der Ausbreitung gehindert werden können

Abdecken der Kanalisationen

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Hinweise wie die Reinigung im Fall von Verschütten erfolgen kann

Mit saugfähigem Material (z.B. Lappen, Vlies) aufwischen. Verschüttete Mengen aufnehmen: Sägemehl, Kieselgur (Diatomit), Sand, Universalbinder

Geeignete Rückhaltetechniken

Einsatz adsorbierender Materialien.

Weitere Angaben betreffend Verschütten und Freisetzung

In geeigneten Behältern zur Entsorgung bringen. Den betroffenen Bereich belüften.

**6.4 Verweis auf andere Abschnitte**

Gefährliche Verbrennungsprodukte: siehe Abschnitt 5. Persönliche Schutzausrüstung: siehe Abschnitt 8. Unverträgliche Materialien: siehe Abschnitt 10. Angaben zur Entsorgung: siehe Abschnitt 13.

**ABSCHNITT 7: Handhabung und Lagerung****7.1 Schutzmaßnahmen zur sicheren Handhabung**

Empfehlungen

- Maßnahmen zur Verhinderung von Bränden sowie von Aerosol- und Staubbildung

Verwendung einer örtlichen und generellen Lüftung. Vermeiden von Zündquellen. Von Zündquellen fernhalten - Nicht rauchen. Maßnahmen gegen elektrostatische Entladungen treffen. Nur in gut gelüfteten Bereichen verwenden. Wegen Explosionsgefahr Eindringen der Dämpfe in Keller, Kanalisation und Gruben verhindern. Behälter und zu befüllende Anlage erden. Explosionsgeschützte elektrische Geräte/Lüftungsanlagen/Beleuchtungsanlagen verwenden. Nur funkenfreies Werkzeug verwenden.

- Spezifische Hinweise/Angaben

Mit dem Vorhandensein von brennbaren Stoffen oder Gemischen ist in Bereichen zu rechnen, die von der Lüftung nicht erfasst sind, z.B. unbelüftete tief liegende Bereiche, wie Gruben, Kanäle, Keller und Schächte. Dämpfe sind schwerer als Luft, breiten sich am Boden aus und bilden mit Luft ein explosionsfähiges Gemisch. Dämpfe können zusammen mit Luft ein explosives Gemisch bilden.

Hinweise zur allgemeinen Hygiene am Arbeitsplatz

Nach Gebrauch die Hände waschen. In Bereichen, in denen gearbeitet wird, nicht essen, trinken und rauchen. Vor dem Betreten von Bereichen, in denen gegessen wird, kontaminierte Kleidung und Schutzausrüstung ablegen. Bewahren Sie Speisen und Getränke nicht zusammen mit Chemikalien auf. Benutzen Sie für Chemikalien keine Gefäße, die üblicherweise für die Aufnahme von Lebensmitteln bestimmt sind. Von Nahrungsmitteln, Getränken und Futtermitteln fernhalten.

**7.2 Bedingungen zur sicheren Lagerung unter Berücksichtigung von Unverträglichkeiten**

Begegnung von Risiken nachstehender Art

- Explosionsfähige Atmosphären

Behälter dicht geschlossen an einem gut gelüfteten Ort aufbewahren. Verwendung einer örtlichen und generellen Lüftung. Kühl halten. Vor Sonnenbestrahlung schützen.

- Durch Entzündbarkeit bedingte Gefahren

Von Zündquellen fernhalten - Nicht rauchen. Von Hitze, heißen Oberflächen, Funken, offenen Flammen sowie anderen Zündquellenarten fernhalten. Nicht rauchen. Maßnahmen gegen elektrostatische Entladungen treffen. Vor Sonnenbestrahlung schützen.

- Anforderungen an die Belüftung

Verwendung einer örtlichen und generellen Lüftung. Behälter und zu befüllende Anlage erden.

- Geeignete Verpackung

Es dürfen nur zugelassene Verpackungen (z.B. gemäß ADR) verwendet werden.

**7.3 Spezifische Endanwendungen**

Für einen allgemeinen Überblick siehe Abschnitt 16.

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### ABSCHNITT 8: Begrenzung und Überwachung der Exposition/persönliche Schutzausrüstungen

#### 8.1 Zu überwachende Parameter

Grenzwerte für die berufsbedingte Exposition (Arbeitsplatzgrenzwerte)								
Land	Arbeitsstoff	CAS-Nr.	Identifikator	SMW [ppm]	SMW [mg/m³]	KZW [ppm]	KZW [mg/m³]	Quelle
AT	Kohlenwasserstoffdämpfe (Aromatengehalt < 1%, n-Hexan < 5%, Cyclo-/Isohexane ≥ 25%)	127-91-3	MAK	170		340 (30 min)		GKV
AT	Kohlenwasserstoffdämpfe (Aromatengehalt ≤ 25%, n-Hexan < 1%)	5989-27-5	MAK	70		140 (30 min)		GKV
CH	β-Pinen	127-91-3	MAK	20	112	40	224	SUVA
CH	D-Limonen	5989-27-5	MAK	7	40	14	80	SUVA
CH	α-Pinen	80-56-8	MAK	20	112	40	224	SUVA
DE	(R)-p-Mentha-1,8-dien	5989-27-5	AGW	5	28	20	112	TRGS 900
DE	D-Limonen	5989-27-5	MAK	5	28	20	112	DFG

#### Hinweis

KZW

Kurzzeitwert (Grenzwert für Kurzzeiteexposition): Grenzwert der nicht überschritten werden soll, auf eine Dauer von 15 Minuten bezogen (soweit nicht anders angegeben)

SMW

Schichtmittelwert (Grenzwert für Langzeiteexposition): Zeitlich gewichteter Mittelwert, gemessen oder berechnet für einen Bezugszeitraum von acht Stunden (soweit nicht anders angegeben)

#### Für die menschliche Gesundheit maßgebliche Werte

Relevante DNEL- und andere Schwellenwerte				
Endpunkt	Schwellenwert	Schutzziel, Expositionsweg	Verwendung in	Expositionsdauer
DNEL	3,52 mg/m³	Mensch, inhalativ	Arbeitnehmer (Industrie)	chronisch - systemische Wirkungen
DNEL	1 mg/kg KG/Tag	Mensch, dermal	Arbeitnehmer (Industrie)	chronisch - systemische Wirkungen

Relevante DNEL von Bestandteilen der Mischung						
Stoffname	CAS-Nr.	Endpunkt	Schwellenwert	Schutzziel, Expositionsweg	Verwendung in	Expositionsdauer
Eukalyptol (1.8-Cineol)	470-82-6	DNEL	7,05 mg/m³	Mensch, inhalativ	Arbeitnehmer (Industrie)	chronisch - systemische Wirkungen
Eukalyptol (1.8-Cineol)	470-82-6	DNEL	2 mg/kg KG/Tag	Mensch, dermal	Arbeitnehmer (Industrie)	chronisch - systemische Wirkungen
d-Limonen	5989-27-5 68606-81-5	DNEL	66,7 mg/m³	Mensch, inhalativ	Arbeitnehmer (Industrie)	chronisch - systemische Wirkungen
d-Limonen	5989-27-5 68606-81-5	DNEL	9,5 mg/kg KG/Tag	Mensch, dermal	Arbeitnehmer (Industrie)	chronisch - systemische Wirkungen

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Stoffname	CAS-Nr.	Endpunkt	Schwellenwert	Schutzziel, Expositionsweg	Verwendung in	Expositionsdauer
alpha-Pinen	80-56-8	DNEL	3,8 mg/m <sup>3</sup>	Mensch, inhalativ	Arbeitnehmer (Industrie)	chronisch - systemische Wirkungen
alpha-Pinen	80-56-8	DNEL	0,54 mg/kg KG/Tag	Mensch, dermal	Arbeitnehmer (Industrie)	chronisch - systemische Wirkungen
beta-Pinen	127-91-3 18172-67-3	DNEL	5,69 mg/m <sup>3</sup>	Mensch, inhalativ	Arbeitnehmer (Industrie)	chronisch - systemische Wirkungen
beta-Pinen	127-91-3 18172-67-3	DNEL	0,8 mg/kg KG/Tag	Mensch, dermal	Arbeitnehmer (Industrie)	chronisch - systemische Wirkungen
beta-Pinen	127-91-3 18172-67-3	DNEL	54 µg/cm <sup>2</sup>	Mensch, dermal	Arbeitnehmer (Industrie)	chronisch - lokale Wirkungen

### Relevante PNEC von Bestandteilen der Mischung

Stoffname	CAS-Nr.	Endpunkt	Schwellenwert	Organismus	Umweltkompartiment	Expositionsdauer
Eukalyptol (1.8-Cineol)	470-82-6	PNEC	57 µg/l	Wasserorganismen	Süßwasser	kurzzeitig (einmalig)
Eukalyptol (1.8-Cineol)	470-82-6	PNEC	5,7 µg/l	Wasserorganismen	Meerwasser	kurzzeitig (einmalig)
Eukalyptol (1.8-Cineol)	470-82-6	PNEC	10 mg/l	Wasserorganismen	Kläranlage (STP)	kurzzeitig (einmalig)
Eukalyptol (1.8-Cineol)	470-82-6	PNEC	1,425 mg/kg	Wasserorganismen	Süßwassersediment	kurzzeitig (einmalig)
Eukalyptol (1.8-Cineol)	470-82-6	PNEC	0,142 mg/kg	Wasserorganismen	Meeressediment	kurzzeitig (einmalig)
Eukalyptol (1.8-Cineol)	470-82-6	PNEC	0,25 mg/kg	terrestrische Organismen	Boden	kurzzeitig (einmalig)
d-Limonen	5989-27-5 68606-81-5	PNEC	14 µg/l	Wasserorganismen	Süßwasser	kurzzeitig (einmalig)
d-Limonen	5989-27-5 68606-81-5	PNEC	1,4 µg/l	Wasserorganismen	Meerwasser	kurzzeitig (einmalig)
d-Limonen	5989-27-5 68606-81-5	PNEC	1,8 mg/l	Wasserorganismen	Kläranlage (STP)	kurzzeitig (einmalig)
d-Limonen	5989-27-5 68606-81-5	PNEC	3,85 mg/kg	Wasserorganismen	Süßwassersediment	kurzzeitig (einmalig)
d-Limonen	5989-27-5 68606-81-5	PNEC	0,385 mg/kg	Wasserorganismen	Meeressediment	kurzzeitig (einmalig)
d-Limonen	5989-27-5 68606-81-5	PNEC	0,763 mg/kg	terrestrische Organismen	Boden	kurzzeitig (einmalig)
alpha-Pinen	80-56-8	PNEC	0,606 µg/l	Wasserorganismen	Süßwasser	kurzzeitig (einmalig)
alpha-Pinen	80-56-8	PNEC	0,061 µg/l	Wasserorganismen	Meerwasser	kurzzeitig (einmalig)



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Relevante PNEC von Bestandteilen der Mischung						
Stoffname	CAS-Nr.	Endpunkt	Schwellenwert	Organismus	Umweltkompartiment	Expositionsdauer
alpha-Pinen	80-56-8	PNEC	0,2 mg/l	Wasserorganismen	Kläranlage (STP)	kurzzeitig (einmalig)
alpha-Pinen	80-56-8	PNEC	157 µg/kg	Wasserorganismen	Süßwassersediment	kurzzeitig (einmalig)
alpha-Pinen	80-56-8	PNEC	15,7 µg/kg	Wasserorganismen	Meeressediment	kurzzeitig (einmalig)
alpha-Pinen	80-56-8	PNEC	31,7 µg/kg	terrestrische Organismen	Boden	kurzzeitig (einmalig)
beta-Pinen	127-91-3 18172-67-3	PNEC	1,004 µg/l	Wasserorganismen	Süßwasser	kurzzeitig (einmalig)
beta-Pinen	127-91-3 18172-67-3	PNEC	0,1 µg/l	Wasserorganismen	Meerwasser	kurzzeitig (einmalig)
beta-Pinen	127-91-3 18172-67-3	PNEC	3,26 mg/l	Wasserorganismen	Kläranlage (STP)	kurzzeitig (einmalig)
beta-Pinen	127-91-3 18172-67-3	PNEC	0,337 mg/kg	Wasserorganismen	Süßwassersediment	kurzzeitig (einmalig)
beta-Pinen	127-91-3 18172-67-3	PNEC	0,034 mg/kg	Wasserorganismen	Meeressediment	kurzzeitig (einmalig)
beta-Pinen	127-91-3 18172-67-3	PNEC	0,067 mg/kg	terrestrische Organismen	Boden	kurzzeitig (einmalig)

### 8.2 Begrenzung und Überwachung der Exposition

Geeignete technische Steuerungseinrichtungen

Generelle Lüftung.

Individuelle Schutzmaßnahmen (persönliche Schutzausrüstung)

Augen-/Gesichtsschutz

Schutzbrille/Gesichtsschutz tragen.

Hautschutz

- Handschutz

Geeignete Schutzhandschuhe tragen. Geeignet ist ein nach EN 374 geprüfter Chemikalienschutzhandschuh. Vor Gebrauch auf Dichtheit/Undurchlässigkeit überprüfen. Bei beabsichtigter Wiederverwendung Handschuhe vor dem Ausziehen reinigen und danach gut durchlüften. Es wird empfohlen, die Chemikalienbeständigkeit der oben genannten Schutzhandschuhe für spezielle Anwendungen mit dem Handschuhhersteller abzuklären.

- Art des Materials

NBR: Acrylnitril-Butadien-Kautschuk

- Materialstärke

> 0,7 mm

- Durchbruchzeit des Handschuhmaterials

>10 Minuten (Permeationslevel: 1)

- Sonstige Schutzmaßnahmen

Erholungsphasen zur Regeneration der Haut einlegen. Vorbeugender Hautschutz (Schutzcremes/Salben) wird empfohlen. Nach Gebrauch Hände gründlich waschen.



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### Atemschutz

Bei unzureichender Belüftung Atemschutz tragen.  
 Filtrierende Halbmaske (EN 149). Typ: A (gegen organische Gase und Dämpfe mit Siedepunkt > 65 °C, Kennfarbe: Braun).

### Begrenzung und Überwachung der Umweltexposition

Zur Vermeidung einer Kontamination der Umwelt geeigneten Behälter verwenden. Das Eindringen in die Kanalisation oder in Oberflächen- und Grundwasser verhindern.

## ABSCHNITT 9: Physikalische und chemische Eigenschaften

### 9.1 Angaben zu den grundlegenden physikalischen und chemischen Eigenschaften

#### Aussehen

Aggregatzustand	flüssig
Farbe	hellgelb
Geruch	nach Kampfer

#### Weitere sicherheitstechnische Kenngrößen

pH-Wert	nicht bestimmt
Schmelzpunkt/Gefrierpunkt	<-20 °C
Siedebeginn und Siedebereich	nicht bestimmt
Flammpunkt	45 °C bei 101 kPa
Verdampfungsgeschwindigkeit	nicht bestimmt
Entzündbarkeit (fest, gasförmig)	nicht relevant, (Flüssigkeit)
Explosionsgrenzen	nicht bestimmt
Dampfdruck	nicht bestimmt
Dichte	0,9155 g/cm <sup>3</sup>
Dampfdichte	keine Information verfügbar
Löslichkeit(en)	nicht bestimmt

#### Verteilungskoeffizient

- n-Octanol/Wasser (log KOW)	keine Information verfügbar
Selbstentzündungstemperatur	270 °C bei 99.057 Pa (ECHA)

#### Viskosität

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- Kinematische Viskosität	1,79 mm <sup>2</sup> /s bei 40 °C
- Dynamische Viskosität	2,46 mPa s bei 20 °C
Explosive Eigenschaften	keine
Oxidierende Eigenschaften	keine

### 9.2 Sonstige Angaben

Temperaturklasse (EU gem. ATEX)	T3 (maximal zulässige Oberflächentemperatur der Betriebsmittel: 200°C)
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## ABSCHNITT 10: Stabilität und Reaktivität

### 10.1 Reaktivität

Bezüglich Unverträglichkeiten: siehe unten "Zu vermeidende Bedingungen" und "Unverträgliche Materialien". Es handelt sich um einen reaktiven Stoff. Das Gemisch enthält reaktive(n) Stoff(e). Entzündungsgefahr.

Bei Erwärmung:

Entzündungsgefahr

### 10.2 Chemische Stabilität

Siehe unten "Zu vermeidende Bedingungen".

### 10.3 Möglichkeit gefährlicher Reaktionen

Es sind keine gefährlichen Reaktionen bekannt.

### 10.4 Zu vermeidende Bedingungen

Von Hitze, heißen Oberflächen, Funken, offenen Flammen sowie anderen Zündquellenarten fernhalten. Nicht rauchen.

Hinweise wie Brände oder Explosionen vermieden werden können

Explosionssgeschützte elektrische Geräte/Lüftungsanlagen/Beleuchtungsanlagen verwenden. Nur funkenfreies Werkzeug verwenden. Maßnahmen gegen elektrostatische Entladungen treffen.

### 10.5 Unverträgliche Materialien

Oxidationsmittel

### 10.6 Gefährliche Zersetzungsprodukte

Vernünftigerweise zu erwartende, gefährliche Zersetzungsprodukte, die bei Verwendung, Lagerung, Verschütten und Erwärmung entstehen, sind nicht bekannt. Gefährliche Verbrennungsprodukte: siehe Abschnitt 5.

## ABSCHNITT 11: Toxikologische Angaben

### 11.1 Angaben zu toxikologischen Wirkungen

#### Einstufung gemäß GHS (1272/2008/EG, CLP)

##### Akute Toxizität

Die Kriterien für die Einstufung in diese Gefahrenklassen sind nicht erfüllt.

##### Ätz-/Reizwirkung auf die Haut

Verursacht Hautreizungen.

##### Schwere Augenschädigung/Augenreizung

Die Kriterien für die Einstufung in diese Gefahrenklasse sind nicht erfüllt.

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### Sensibilisierung der Atemwege oder der Haut

Kann allergische Hautreaktionen verursachen.

### Keimzellmutagenität

Die Kriterien für die Einstufung in diese Gefahrenklasse sind nicht erfüllt.

### Karzinogenität

Die Kriterien für die Einstufung in diese Gefahrenklasse sind nicht erfüllt.

### Reproduktionstoxizität

Die Kriterien für die Einstufung in diese Gefahrenklasse sind nicht erfüllt.

### Spezifische Zielorgan-Toxizität bei einmaliger Exposition

Die Kriterien für die Einstufung in diese Gefahrenklasse sind nicht erfüllt.

### Spezifische Zielorgan-Toxizität bei wiederholter Exposition

Die Kriterien für die Einstufung in diese Gefahrenklasse sind nicht erfüllt.

### Aspirationsgefahr

Kann bei Verschlucken und Eindringen in die Atemwege tödlich sein.

## ABSCHNITT 12: Umweltbezogene Angaben

### 12.1 Toxizität

Gemäß 1272/2008/EG: Giftig für Wasserorganismen, mit langfristiger Wirkung.  
Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen (AwSV): WGK 2, wassergefährdend (Deutschland)

#### (Chronische) aquatische Toxizität von Bestandteilen der Mischung

Stoffname	CAS-Nr.	Endpunkt	Wert	Spezies	Expositions- dauer
Eukalyptol (1.8-Cineol)	470-82-6	EC50	>100 mg/l	Mikroorganismen	3 h
d-Limonen	5989-27-5 68606-81-5	EC50	<0,67 mg/l	Fisch	8 d
d-Limonen	5989-27-5 68606-81-5	LC50	0,41 mg/l	Fisch	8 d
beta-Pinen	127-91-3 18172-67-3	EC50	326 mg/l	Mikroorganismen	3 h

### 12.2 Persistenz und Abbaubarkeit

Es sind keine Daten verfügbar.

### 12.3 Bioakkumulationspotenzial

Es sind keine Daten verfügbar.

#### Bioakkumulationspotenzial von Bestandteilen der Mischung

Stoffname	CAS-Nr.	BCF	Log KOW	BSB5/CSB
Eukalyptol (1.8-Cineol)	470-82-6		3,4	
d-Limonen	5989-27-5 68606-81-5		4,38 (pH-Wert: 7,2, 37 °C)	
Myrcen	123-35-3		4,82 (pH-Wert: ~6,5, 30 °C)	

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### Bioakkumulationspotenzial von Bestandteilen der Mischung

Stoffname	CAS-Nr.	BCF	Log KOW	BSB5/CSB
beta-Pinen	127-91-3 18172-67-3		4,425 (25 °C)	

#### 12.4 Mobilität im Boden

Es sind keine Daten verfügbar.

#### 12.5 Ergebnisse der PBT- und vPvB-Beurteilung

Es sind keine Daten verfügbar.

#### 12.6 Andere schädliche Wirkungen

Potenzial zur Störung der endokrinen Systeme

Nicht gelistet.

### ABSCHNITT 13: Hinweise zur Entsorgung

#### 13.1 Verfahren der Abfallbehandlung

Für die Abfallbehandlung relevante Angaben

Rückgewinnung/Regenerierung von Lösemitteln.

Für die Entsorgung über Abwasser relevante Angaben

Nicht in die Kanalisation gelangen lassen. Freisetzung in die Umwelt vermeiden. Besondere Anweisungen einholen/ Sicherheitsdatenblatt zu Rate ziehen.

Abfallbehandlung von Behältern/Verpackungen

Es handelt sich um einen gefährlichen Abfall; es dürfen nur zugelassene Verpackungen (z.B. gemäß ADR) verwendet werden. Vollständig entleerte Verpackungen können einer Verwertung zugeführt werden. Kontaminierte Verpackungen sind wie der Stoff zu behandeln.

#### Einschlägige Rechtsvorschriften über Abfall

Entscheidung 2000/532/EG über ein Abfallverzeichnis

Produkt, Produktreste: 07 06 99 Abfälle a. n. g.

Verpackungen: 15 01 10x Verpackungen, die Rückstände gefährlicher Stoffe enthalten oder durch gefährliche Stoffe verunreinigt sind.

Vollständig entleerte Verpackungen können einer Verwertung zugeführt werden.

#### Anmerkungen

Bitte beachten Sie die einschlägigen nationalen oder regionalen Bestimmungen. Abfall ist so zu trennen, dass er von den kommunalen oder nationalen Abfallentsorgungseinrichtungen getrennt behandelt werden kann.

### ABSCHNITT 14: Angaben zum Transport

<b>14.1 UN-Nummer</b>	1169
<b>14.2 Ordnungsgemäße UN-Versandbezeichnung</b>	EXTRAKTE, AROMATISCH, FLÜSSIG
<b>14.3 Transportgefahrenklassen</b>	
Klasse	3 (entzündbare flüssige Stoffe)
<b>14.4 Verpackungsgruppe</b>	III (Stoff mit geringer Gefahr)
<b>14.5 Umweltgefahren</b>	gewässergefährdend

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### 14.6 Besondere Vorsichtsmaßnahmen für den Verwender

Die Vorschriften für gefährliche Güter (ADR) sind auch innerhalb des Betriebsgeländes zu beachten.

### 14.7 Massengutbeförderung gemäß Anhang II des MARPOL-Übereinkommens und gemäß IBC-Code

Die Fracht wird nicht als Massengut befördert.

### Angaben nach den einzelnen UN-Modellvorschriften

#### **Beförderung gefährlicher Güter auf Straße, Schiene oder Binnenwasserstraßen (ADR/RID/ADN)**

UN-Nummer	1169
Offizielle Benennung für die Beförderung	EXTRAKTE, AROMATISCH, FLÜSSIG
Vermerke im Beförderungspapier	UN1169, EXTRAKTE, AROMATISCH, FLÜSSIG, 3, III, (D/E), umweltgefährdend
Klasse	3
Klassifizierungscode	F1
Verpackungsgruppe	III
Gefahrzettel	3, Fisch und Baum



Umweltgefahren	ja (gewässergefährdend)
Sondervorschriften (SV)	601
Freigestellte Mengen (EQ)	E1
Begrenzte Mengen (LQ)	5 L
Beförderungskategorie (BK)	3
Tunnelbeschränkungscode (TBC)	D/E
Nummer zur Kennzeichnung der Gefahr	30

#### **Internationaler Code für die Beförderung gefährlicher Güter mit Seeschiffen (IMDG)**

UN-Nummer	1169
Offizielle Benennung für die Beförderung	EXTRAKTE, AROMATISCH, FLÜSSIG
Angaben im Beförderungsdokument (shipper's declaration)	UN1169, EXTRAKTE, AROMATISCH, FLÜSSIG, 3, III, 45°C c.c., MEERESSCHADSTOFF
Klasse	3
Meeresschadstoff (Marine Pollutant)	ja (gewässergefährdend)
Verpackungsgruppe	III
Gefahrzettel	3, Fisch und Baum




Sondervorschriften (SV)	223, 955
Freigestellte Mengen (EQ)	E1
Begrenzte Mengen (LQ)	5 L
EmS	F-E, S-D
Staukategorie (stowage category)	A

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### Internationale Zivilluftfahrt-Organisation (ICAO-IATA/DGR)

UN-Nummer	1169
Offizielle Benennung für die Beförderung	Extrakte, aromatisch, flüssig
Angaben im Beförderungsdokument (shipper's declaration)	UN1169, Extrakte, aromatisch, flüssig, 3, III
Klasse	3
Umweltgefahren	ja (gewässergefährdend)
Verpackungsgruppe	III
Gefahrzettel	3
	
Sondervorschriften (SV)	A3
Freigestellte Mengen (EQ)	E1
Begrenzte Mengen (LQ)	10 L

### ABSCHNITT 15: Rechtsvorschriften

#### 15.1 Vorschriften zu Sicherheit, Gesundheits- und Umweltschutz/spezifische Rechtsvorschriften für den Stoff oder das Gemisch

##### Einschlägige Bestimmungen der Europäischen Union (EU)

##### Verzeichnis der zulassungspflichtigen Stoffe (REACH, Anhang XIV) / SVHC - Kandidatenliste

nicht gelistet

##### Seveso Richtlinie

2012/18/EU (Seveso III)			
Nr.	Gefährlicher Stoff/Gefahrenkategorien	Mengenschwelle (in Tonnen) für die Anwendung in Betrieben der unteren und oberen Klasse	Anm.
E2	Umweltgefahren (gewässergefährdend, Kat. 2)	200                      500	57)

Hinweis

57) gewässergefährdend, Gefahrenkategorie Chronisch 2

##### Nationale Vorschriften (Österreich)

Verordnung über brennbare Flüssigkeiten (VbF)

VbF (Gruppe und Gefahrenklasse) AII (brennbare Flüssigkeiten der Gruppe A, Gefahrenklasse II)

##### Nationale Vorschriften (Deutschland)

##### Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen (AwSV)

Wassergefährdungsklasse (WGK) 2 wassergefährdend

Kennnummer 2892

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### Technische Anleitung zur Reinhaltung der Luft (Deutschland)

Nummer	Stoffgruppe	Klasse	Konz.	Massenstrom	Massenkonzentration	Hinweis
5.2.5	organische Stoffe	Klasse I	≥ 25 Gew.-%	0,1 kg/h	20 mg/m <sup>3</sup>	3)
5.2.5	organische Stoffe		≥ 25 Gew.-%	0,5 kg/h	50 mg/m <sup>3</sup>	3)

#### Hinweis

3) der Massenstrom 0,50 kg/h oder die Massenkonzentration 50 mg/m<sup>3</sup> darf, jeweils angegeben als Gesamtkohlenstoff, insgesamt nicht überschritten werden (ausgenommen staubförmige organische Stoffe)

### Lagerung von Gefahrstoffen in ortsbeweglichen Behältern (TRGS 510) (Deutschland)

Lagerklasse (LGK)

3 (entzündliche Flüssigkeiten)

### Nationale Verzeichnisse

Land	Verzeichnis	Status
CA	DSL	Stoff ist gelistet
EU	REACH Reg.	Stoff ist gelistet
US	TSCA	Stoff ist gelistet
AU	AICS	Stoff ist gelistet
CN	IECSC	Stoff ist gelistet
KR	KECI	Stoff ist gelistet
NZ	NZIoC	Stoff ist gelistet
PH	PICCS	Stoff ist gelistet
TR	CICR	Stoff ist gelistet
TW	TCSI	Stoff ist gelistet
EU	ECSI	Stoff ist gelistet

#### Legende

AICS	Australian Inventory of Chemical Substances
CICR	Chemical Inventory and Control Regulation
DSL	Domestic Substances List (DSL)
ECSI	EG Stoffverzeichnis (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
KECI	Korea Existing Chemicals Inventory
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances
REACH Reg.	REACH registrierte Stoffe
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

### 15.2 Stoffsicherheitsbeurteilung

Eine Stoffsicherheitsbeurteilung wurde für diesen Stoff durchgeführt.



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### ABSCHNITT 16: Sonstige Angaben

#### Vorgenommene Änderungen (überarbeitetes Sicherheitsdatenblatt)

Abschnitt	Ehemaliger Eintrag (Text/Wert)	Aktueller Eintrag (Text/Wert)	Sicherheitsrelevant
2.2		- Sicherheitshinweise: Änderung in der Auflistung (Tabelle)	ja

#### Abkürzungen und Akronyme

Abk.	Beschreibungen der verwendeten Abkürzungen
Acute Tox.	Akute Toxizität
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (Europäisches Übereinkommen über die internationale Beförderung gefährlicher Güter auf Binnenwasserstraßen)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (Europäisches Übereinkommen über die internationale Beförderung gefährlicher Güter auf der Straße)
AGW	Arbeitsplatzgrenzwert
Aquatic Acute	Gewässergefährdend (akute aquatische Toxizität)
Aquatic Chronic	Gewässergefährdend (chronische aquatische Toxizität)
Asp. Tox.	Aspirationsgefahr
BCF	Bioconcentration factor (Biokonzentrationsfaktor)
BSB	Biochemischer Sauerstoffbedarf
CAS	Chemical Abstracts Service (Datenbank von chemischen Verbindungen und deren eindeutigen Schlüssel, der CAS Registry Number)
CLP	Verordnung (EG) Nr. 1272/2008 über die Einstufung, Kennzeichnung und Verpackung (Classification, Labelling and Packaging) von Stoffen und Gemischen
CSB	Chemischer Sauerstoffbedarf
DFG	Deutsche Forschungsgemeinschaft MAK- und BAT-Werte-Liste, Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe, Wiley-VCH, Weinheim
DGR	Dangerous Goods Regulations (Gefahrgutvorschriften) Regelwerk für den Transport gefährlicher Güter, siehe IATA/DGR
DNEL	Derived No-Effect Level (abgeleitete Expositionshöhe ohne Beeinträchtigung)
EG-Nr.	Das EG-Verzeichnis (EINECS, ELINCS und das NLP-Verzeichnis) ist die Quelle für die siebenstellige EC-Nummer als Kennzahl für Stoffe in der EU (Europäische Union)
EINECS	European Inventory of Existing Commercial Chemical Substances (europäisches Verzeichnis der auf dem Markt vorhandenen chemischen Stoffe)
ELINCS	European List of Notified Chemical Substances (europäische Liste der angemeldeten chemischen Stoffe)
EmS	Emergency Schedule (Notfall Zeitplan)
Eye Dam.	Schwer augenschädigend
Eye Irrit.	Augenreizend
Flam. Liq.	Entzündbare Flüssigkeit
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" "Global harmonisiertes System zur Einstufung und Kennzeichnung von Chemikalien", das die Vereinten Nationen entwickelt haben
GKV	Grenzwerteverordnung

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Abk.	Beschreibungen der verwendeten Abkürzungen
IATA	International Air Transport Association (Internationale Flug-Transport-Vereinigung)
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA) (Regelwerk für den Transport gefährlicher Güter im Luftverkehr)
ICAO	International Civil Aviation Organization (internationale Zivilluftfahrt-Organisation)
IMDG	International Maritime Dangerous Goods Code (internationaler Code für die Beförderung gefährlicher Güter mit Seeschiffen)
KZW	Kurzzeitwert
LGK	Lagerklasse gemäß TRGS 510, Deutschland
log KOW	n-Octanol/Wasser
MARPOL	Internationales Übereinkommen zur Verhütung der Meeresverschmutzung durch Schiffe (Abk. von "Marine Pollutant")
NLP	No-Longer Polymer (nicht-länger-Polymer)
PBT	Persistent, Bioakkumulierbar und Toxisch
PNEC	Predicted No-Effect Concentration (abgeschätzte Nicht-Effekt-Konzentration)
ppm	Parts per million (Teile pro Million)
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Registrierung, Bewertung, Zulassung und Beschränkung chemischer Stoffe)
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Ordnung für die internationale Eisenbahnbeförderung gefährlicher Güter)
Skin Corr.	Hautätzend
Skin Irrit.	Hautreizend
Skin Sens.	Sensibilisierung der Haut
SMW	Schichtmittelwert
SUVA	Grenzwerte am Arbeitsplatz, Suva
SVHC	Substance of Very High Concern (besonders besorgniserregender Stoff)
TRGS	Technische Regeln für Gefahrstoffe (Deutschland)
TRGS 900	Arbeitsplatzgrenzwerte (TRGS 900)
VbF	Verordnung über brennbare Flüssigkeiten (Österreich)
vPvB	Very Persistent and very Bioaccumulative (sehr persistent und sehr bioakkumulierbar)

### Wichtige Literatur und Datenquellen

Verordnung (EG) Nr. 1272/2008 über die Einstufung, Kennzeichnung und Verpackung (Classification, Labelling and Packaging) von Stoffen und Gemischen. Verordnung (EG) Nr. 1907/2006 (REACH), geändert mit 2015/830/EU.

Beförderung gefährlicher Güter auf Straße, Schiene oder Binnenwasserstraßen (ADR/RID/ADN). Internationaler Code für die Beförderung gefährlicher Güter mit Seeschiffen (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA) (Regelwerk für den Transport gefährlicher Güter im Luftverkehr).

### Liste der einschlägigen Sätze (Code und Wortlaut wie in Kapitel 2 und 3 angegeben)

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Code	Text
H226	Flüssigkeit und Dampf entzündbar.
H302	Gesundheitsschädlich bei Verschlucken.
H304	Kann bei Verschlucken und Eindringen in die Atemwege tödlich sein.
H315	Verursacht Hautreizungen.
H317	Kann allergische Hautreaktionen verursachen.
H319	Verursacht schwere Augenreizung.
H400	Sehr giftig für Wasserorganismen.
H410	Sehr giftig für Wasserorganismen mit langfristiger Wirkung.
H411	Giftig für Wasserorganismen, mit langfristiger Wirkung.

**Haftungsausschluss**

Die vorliegenden Informationen beruhen auf unserem gegenwärtigen Kenntnisstand. Dieses SDB wurde ausschließlich für dieses Produkt zusammengestellt und ist ausschließlich für dieses vorgesehen.

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## ES 1: Manufacture; Manufacture

### 1.1. Title section

Environment	
CS 1: Manufacture	ERC 1
Worker	
CS 2: General process - Use in continuous closed process	PROC 1
CS 3: General process - used in continuous closed process with occasional exposure - including sampling and waste management	PROC 2
CS 4: General process - use in closed batch process (including sampling and waste management)	PROC 3
CS 5: General process - batch process (including sampling and waste management)	PROC 4
CS 6: Transferts	PROC 8b
CS 7: Cleaning and maintenance	PROC 8b
CS 8: QC lab	PROC 15

### 1.2. Conditions of use affecting exposure

#### 1.2.1. Control of environmental exposure: Manufacture (ERC 1)

Amount used, frequency and duration of use (or from service life)
Daily amount per site <= 0.1 tonnes/day
Annual amount per site <= 25.0 tonnes/year
Emission days : >= 250 (days/year)
Conditions and measures related to sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment 88.4 %
Assumed domestic sewage treatment plant flow >= 10000 m3/d

No application of sewage sludge to soil
<b>Conditions and measures related to treatment of waste (including article waste)</b>
Dispose of waste or used sacks/containers according to local regulations.
<b>Other conditions affecting environmental exposure</b>
Receiving surface water flow $\geq 400000 \text{ m}^3/\text{d}$

### 1.2.2. Control of worker exposure: General process - Use in continuous closed process (PROC 1)

<b>Product (article) characteristics</b>
<i>Covers percentage substance in the product up to 100 %.</i>
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
<i>Covers daily exposures up to 8 hours.</i>
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Use in closed process, no likelihood of exposure
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically safety goggles (tested to EN166) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to $130.0 \text{ }^{\circ}\text{C}$

### 1.2.3. Control of worker exposure: General process - used in continuous closed process with occasional exposure - including sampling and waste management (PROC 2)

<b>Product (article) characteristics</b>
<i>Covers percentage substance in the product up to 100 %.</i>



<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 15 minutes.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Use in closed, continuous process with occasional controlled exposure
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically safety goggles (tested to EN166) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 80.0 °C

#### 1.2.4. Control of worker exposure: General process - use in closed batch process (including sampling and waste management) (PROC 3)

<b>Product (article) characteristics</b>
<i>Covers percentage substance in the product up to 100 %.</i>
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 15 minutes.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Use in closed batch process (synthesis or formulation)
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>

## Eucalyptus globulus, ext.,

Wear chemically safety goggles (tested to EN166) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 80.0 °C

### 1.2.5. Control of worker exposure: General process - batch process (including sampling and waste management) (PROC 4)

<b>Product (article) characteristics</b>
<i>Covers percentage substance in the product up to 100 %.</i>
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Use in semi-closed process with opportunity for exposure
Local exhaust ventilation - efficiency of at least 90.0 %
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically safety goggles (tested to EN166) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 80.0 °C

### 1.2.6. Control of worker exposure: Transferts (PROC 8b)

<b>Product (article) characteristics</b>
<i>Covers percentage substance in the product up to 100 %.</i>
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Use in semi-closed process with opportunity for exposure
Local exhaust ventilation - efficiency of at least 95.0 %
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically safety goggles (tested to EN166) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

### 1.2.7. Control of worker exposure: Cleaning and maintenance (PROC 8b)

<b>Product (article) characteristics</b>
Limit the substance content in the product to 5 %.
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .

## Eucalyptus globulus, ext.,

Use in semi-closed process with opportunity for exposure
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically safety goggles (tested to EN166) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

### 1.2.8. Control of worker exposure: QC lab (PROC 15)

<b>Product (article) characteristics</b>
<i>Covers percentage substance in the product up to 100 %.</i>
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 15 minutes.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically safety goggles (tested to EN166) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use

Assumes process temperature up to 40.0 °C

### 1.3. Exposure estimation and reference to its source

#### 1.3.1. Environmental release and exposure: Manufacture (ERC 1)

Release route	Release rate	Release estimation method
Water	6 kg/day	ERC based
Air	5 kg/day	ERC based
Soil	0.01 kg/day	ERC based

Protection target	Exposure estimate (based on: EUSES 2.1.2)	RCR
Freshwater	0.002 mg/L	0.887
Sediment (freshwater)	0.054 mg/kg dw	0.081
Marine water	7.071E-4 mg/L	Not applicable*
Sediment (marine water)	0.021 mg/kg dw	0.318
Predator (freshwater)	0.59 mg/kg ww	0.029
Predator (marine water)	0.212 mg/kg ww	0.011
Top predator (marine water)	0.049 mg/kg ww	< 0.01
Sewage treatment plant	0.07 mg/L	< 0.01
Agricultural soil	1.781E-4 mg/kg dw	< 0.01
Predator (terrestrial)	1.645E-4 mg/kg ww	< 0.01
Man via environment - Inhalation	9.594E-4 mg/m <sup>3</sup>	< 0.01
Man via environment - Oral	0.002 mg/kg bw/day	< 0.01

\*The manufacturing site is not assumed to be located on costal area. Therefore the Marine water RCR can be disregarded.

**1.3.2. Worker exposure: General process - Use in continuous closed process (PROC 1)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.045 mg/m <sup>3</sup> (TRA Workers 3.0)	0.013
Dermal, systemic, long-term	0.034 mg/kg bw/day (TRA Workers 3.0)	0.034
Combined routes, systemic, long-term		0.047

**1.3.3. Worker exposure: General process - used in continuous closed process with occasional exposure - including sampling and waste management (PROC 2)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.45 mg/m <sup>3</sup> (TRA Workers 3.0)	0.128
Dermal, systemic, long-term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.137
Combined routes, systemic, long-term		0.265

**1.3.4. Worker exposure: General process - use in closed batch process (including sampling and waste management) (PROC 3)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	1.35 mg/m <sup>3</sup> (TRA Workers 3.0)	0.383
Dermal, systemic, long-term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.069
Combined routes, systemic, long-term		0.452

**1.3.5. Worker exposure: General process - batch process (including sampling and waste management) (PROC 4)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.45 mg/m <sup>3</sup> (TRA Workers 3.0)	0.128
Dermal, systemic, long-term	0.686 mg/kg bw/day (TRA Workers 3.0)	0.686
Combined routes, systemic, long-term		0.814

**1.3.6. Worker exposure: Transferts (PROC 8b)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.225 mg/m <sup>3</sup> (TRA Workers 3.0)	0.064

Route of exposure and type of effects	Exposure estimate	RCR
Dermal, systemic, long-term	0.686 mg/kg bw/day (TRA Workers 3.0)	0.686
Combined routes, systemic, long-term		0.749

**1.3.7. Worker exposure: Cleaning and maintenance (PROC 8b)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.9 mg/m <sup>3</sup> (TRA Workers 3.0)	0.256
Dermal, systemic, long-term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.274
Combined routes, systemic, long-term		0.53

**1.3.8. Worker exposure: QC lab (PROC 15)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	2.249 mg/m <sup>3</sup> (TRA Workers 3.0)	0.639
Dermal, systemic, long-term	0.034 mg/kg bw/day (TRA Workers 3.0)	0.034
Combined routes, systemic, long-term		0.673

**1.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

<b>Scaling method</b>
The workers exposure and environmental emissions have been evaluated using TRA Workers 3.0 and EUSES 2.1.2, respectively.
<b>Health</b>
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures / Operational Conditions outlined in Section 2 are implemented.  Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
<b>Environment</b>
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.



## 2. ES 2: Formulation; GES1 - Formulation of fragrance compounds

### 2.1. Title section

Environment	
CS 1: Formulation of fragrance compounds (large/medium sites)	ERC 2
CS 2: Formulation of fragrance compounds (small sites)	ERC 2
Worker	
CS 3: CS2 - Storage (IFRA F-2)	PROC 1
CS 4: CS3 - Mixing operations (closed systems) in batch process including filling of equipment and sample collection (IFRA F-3)	PROC 3
CS 5: CS4 - Mixing operations (open systems) in batch process including filling of equipment and sample collection (IFRA F-4)	PROC 5
CS 6: CS7 - Equipment cleaning and maintenance (IFRA F-7)	PROC 8a
CS 7: CS1 - Material transfers from/to vessel/container at dedicated facility (IFRA F-1).	PROC 8b
CS 8: CS6 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (IFRA F-6)	PROC 9
CS 9: CS5 - QC laboratory (IFRA F-5)	PROC 15

### 2.2. Conditions of use affecting exposure

#### 2.2.1. Control of environmental exposure: Formulation of fragrance compounds (large/medium sites) (ERC 2)

Amount used, frequency and duration of use (or from service life)
Daily amount per site <= 0.16 tonnes/day
Annual amount per site <= 39.0 tonnes/year
Emission days : >= 250 (days/year)
Conditions and measures related to sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment 88.4 %
Assumed domestic sewage treatment plant flow $\geq 2000$ m <sup>3</sup> /d
<b>Conditions and measures related to treatment of waste (including article waste)</b>
Dispose of waste or used sacks/containers according to local regulations.
<b>Other conditions affecting environmental exposure</b>
Receiving surface water flow $\geq 18000$ m <sup>3</sup> /d

## 2.2.2. Control of environmental exposure: Formulation of fragrance compounds (small sites) (ERC 2)

<b>Amount used, frequency and duration of use (or from service life)</b>
Daily amount per site $\leq 0.064$ tonnes/day
Annual amount per site $\leq 16.0$ tonnes/year
Emission days : $\geq 250$ (days/year)
<b>Conditions and measures related to sewage treatment plant</b>
Estimated substance removal from wastewater via domestic sewage treatment 88.4 %
Assumed domestic sewage treatment plant flow $\geq 2000$ m <sup>3</sup> /d
<b>Conditions and measures related to treatment of waste (including article waste)</b>
Dispose of waste or used sacks/containers according to local regulations.
<b>Other conditions affecting environmental exposure</b>
Receiving surface water flow $\geq 18000$ m <sup>3</sup> /d

## 2.2.3. Control of worker exposure: CS2 - Storage (IFRA F-2) (PROC 1)

<b>Product (article) characteristics</b>
<i>Covers percentage substance in the product up to 100 %.</i>
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.

Technical and organisational conditions and measures
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Use in closed process, no likelihood of exposure
<i>Advanced (industrial) exposure controls assumed.</i>
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C

#### 2.2.4. Control of worker exposure: CS3 - Mixing operations (closed systems) in batch process including filling of equipment and sample collection (IFRA F-3) (PROC 3)

Product (article) characteristics
<i>Covers percentage substance in the product up to 100 %.</i>
Amount used (or contained in articles), frequency and duration of use/exposure
Avoid carrying out activities involving exposure for more than 15 minutes.
Technical and organisational conditions and measures
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Use in closed batch process (synthesis or formulation)
<i>Advanced (industrial) exposure controls assumed.</i>
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically safety goggles (tested to EN166) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C

### 2.2.5. Control of worker exposure: CS4 - Mixing operations (open systems) in batch process including filling of equipment and sample collection (IFRA F-4) (PROC 5)

<b>Product (article) characteristics</b>
Limit the substance content in the product to 25 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Local exhaust ventilation - efficiency of at least 90.0 %
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically safety goggles (tested to EN166) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

### 2.2.6. Control of worker exposure: CS7 - Equipment cleaning and maintenance (IFRA F-7) (PROC 8a)

<b>Product (article) characteristics</b>
Limit the substance content in the product to 5 %.
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .

<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically safety goggles (tested to EN166) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

#### **2.2.7. Control of worker exposure: CS1 - Material transfers from/to vessel/container at dedicated facility (IFRA F-1). (PROC 8b)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 25 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Use in semi-closed process with opportunity for exposure
Local exhaust ventilation - efficiency of at least 95.0 %
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically safety goggles (tested to EN166) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.

Eucalyptus globulus, ext.,

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.;  
For further specification, refer to section 8 of the SDS.

**Other conditions affecting workers exposure**

Indoor use

Assumes process temperature up to 40.0 °C

**2.2.8. Control of worker exposure: CS6 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (IFRA F-6) (PROC 9)**

**Product (article) characteristics**

Limit the substance content in the product to 25 % .

**Amount used (or contained in articles), frequency and duration of use/exposure**

Avoid carrying out activities involving exposure for more than 1 hour.

**Technical and organisational conditions and measures**

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .

Use in semi-closed process with opportunity for exposure

Local exhaust ventilation - efficiency of at least 90.0 %

*Advanced (industrial) exposure controls assumed.*

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear chemically safety goggles (tested to EN166) in combination with 'basic' employee training.;  
For further specification, refer to section 8 of the SDS.

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.;  
For further specification, refer to section 8 of the SDS.

**Other conditions affecting workers exposure**

Indoor use

Assumes process temperature up to 40.0 °C

**2.2.9. Control of worker exposure: CS5 - QC laboratory (IFRA F-5) (PROC 15)**

<b>Product (article) characteristics</b>
<i>Covers percentage substance in the product up to 100 %.</i>
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 15 minutes.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Local exhaust ventilation - efficiency of at least 90.0 %
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically safety goggles (tested to EN166) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

## 2.3. Exposure estimation and reference to its source

### 2.3.1. Environmental release and exposure: Formulation of fragrance compounds (large/medium sites) (ERC 2)

Release route	Release rate	Release estimation method
<b>Water</b>	0.312 kg/day	SpERC based  IFRA 2.1a.v1 - IFRA 2.1a.v1  IFRA - Formulation of fragrance compounds at large/medium sites - IFRA - Formulation of fragrance compounds at large/medium sites
<b>Air</b>	3.9 kg/day	SpERC based



Eucalyptus globulus, ext.,

Release route	Release rate	Release estimation method
		same as above
Soil	0 kg/day	SpERC based same as above

Protection target	Exposure estimate (based on: EUSES 2.1.2)	RCR
Freshwater	0.002 mg/L	0.942
Sediment (freshwater)	0.057 mg/kg dw	0.086
Marine water	1.908E-4 mg/L	0.935
Sediment (marine water)	0.006 mg/kg dw	0.086
Predator (freshwater)	0.622 mg/kg ww	0.031
Predator (marine water)	0.061 mg/kg ww	< 0.01
Top predator (marine water)	0.019 mg/kg ww	< 0.01
Sewage treatment plant	0.018 mg/L	< 0.01
Agricultural soil	0.011 mg/kg dw	0.08
Predator (terrestrial)	0.003 mg/kg ww	< 0.01
Man via environment – Inhalation	7.5E-4 mg/m <sup>3</sup>	< 0.01
Man via environment – Oral	0.002 mg/kg bw/day	< 0.01

**2.3.2. Environmental release and exposure: Formulation of fragrance compounds (small sites) (ERC 2)**

Release route	Release rate	Release estimation method
Water	0.32 kg/day	SpERC based IFRA 2.1b.v1 - IFRA 2.1b.v1

Eucalyptus globulus, ext.,

Release route	Release rate	Release estimation method
		IFRA - Formulation of fragrance compounds at small sites - IFRA - Formulation of fragrance compounds at small sites
<b>Air</b>	1.6 kg/day	SpERC based  same as above
<b>Soil</b>	0 kg/day	SpERC based  same as above

Protection target	Exposure estimate (based on: EUSES 2.1.2)	RCR
Freshwater	0.002 mg/L	0.965
Sediment (freshwater)	0.058 mg/kg dw	0.088
Marine water	1.955E-4 mg/L	0.958
Sediment (marine water)	0.006 mg/kg dw	0.088
Predator (freshwater)	0.636 mg/kg ww	0.032
Predator (marine water)	0.062 mg/kg ww	< 0.01
Top predator (marine water)	0.019 mg/kg ww	< 0.01
Sewage treatment plant	0.019 mg/L	< 0.01
Agricultural soil	0.011 mg/kg dw	0.082
Predator (terrestrial)	0.003 mg/kg ww	< 0.01
Man via environment - Inhalation	3.12E-4 mg/m <sup>3</sup>	< 0.01
Man via environment - Oral	0.002 mg/kg bw/day	< 0.01

### 2.3.3. Worker exposure: CS2 - Storage (IFRA F-2) (PROC 1)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.009 mg/m <sup>3</sup> (TRA Workers 3.0)	< 0.01
Dermal, systemic, long-term	0.034 mg/kg bw/day (TRA Workers 3.0)	0.034
Combined routes, systemic, long-term		0.037

**2.3.4. Worker exposure: CS3 - Mixing operations (closed systems) in batch process including filling of equipment and sample collection (IFRA F-3) (PROC 3)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	1.35 mg/m <sup>3</sup> (TRA Workers 3.0)	0.383
Dermal, systemic, long-term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.069
Combined routes, systemic, long-term		0.452

**2.3.5. Worker exposure: CS4 - Mixing operations (open systems) in batch process including filling of equipment and sample collection (IFRA F-4) (PROC 5)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.27 mg/m <sup>3</sup> (TRA Workers 3.0)	0.077
Dermal, systemic, long-term	0.411 mg/kg bw/day (TRA Workers 3.0)	0.411
Combined routes, systemic, long-term		0.488

**2.3.6. Worker exposure: CS7 - Equipment cleaning and maintenance (IFRA F-7) (PROC 8a)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.18 mg/m <sup>3</sup> (TRA Workers 3.0)	0.051
Dermal, systemic, long-term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.137
Combined routes, systemic, long-term		0.188

**2.3.7. Worker exposure: CS1 - Material transfers from/to vessel/container at dedicated facility (IFRA F-1). (PROC 8b)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.135 mg/m <sup>3</sup> (TRA Workers 3.0)	0.038

Route of exposure and type of effects	Exposure estimate	RCR
Dermal, systemic, long-term	0.411 mg/kg bw/day (TRA Workers 3.0)	0.411
Combined routes, systemic, long-term		0.45

### 2.3.8. Worker exposure: CS6 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (IFRA F-6) (PROC 9)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.27 mg/m <sup>3</sup> (TRA Workers 3.0)	0.077
Dermal, systemic, long-term	0.206 mg/kg bw/day (TRA Workers 3.0)	0.206
Combined routes, systemic, long-term		0.283

### 2.3.9. Worker exposure: CS5 - QC laboratory (IFRA F-5) (PROC 15)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.225 mg/m <sup>3</sup> (TRA Workers 3.0)	0.064
Dermal, systemic, long-term	0.034 mg/kg bw/day (TRA Workers 3.0)	0.034
Combined routes, systemic, long-term		0.098

## 2.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

<b>Scaling method</b>
The workers exposure and environmental emissions have been evaluated using TRA Workers 3.0 and EUSES 2.1.2, respectively.
<b>Health</b>
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures / Operational Conditions outlined in Section 2 are implemented.  Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
<b>Environment</b>
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Eucalyptus globulus, ext.,

### 3. ES 3: Formulation; GES2 - Formulation of fragrance end-products

#### 3.1. Title section

Environment	
CS 1: Formulation of Household Care/Air Freshners products (medium scale)	ERC 2
CS 2: Formulation of Fine Fragrance products (small scale)	ERC 2
CS 3: Formulation of Fine Fragrance products (cleaning with organic solvents)	ERC 2
CS 4: Formulation of Body Care products (medium scale)	ERC 2
Worker	
CS 5: CS2 - Storage (IFRA F-2)	PROC 1
CS 6: CS3 - Mixing operations (closed systems) in batch process including filling of equipment and sample collection (IFRA F-3)	PROC 3
CS 7: CS4 - Mixing operations (open systems) in batch process including filling of equipment and sample collection (IFRA F-4)	PROC 5
CS 8: CS7 - Equipment cleaning and maintenance (IFRA F-7)	PROC 8a
CS 9: CS1 - Material transfers from/to vessel/container at dedicated facility (IFRA F-1).	PROC 8b
CS 10: CS6 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (IFRA F-6)	PROC 9
CS 11: CS8 - Production of preparations or articles by tableting, compression, extrusion, pelletisation (AISE M-8)	PROC 14
CS 12: CS5 - QC laboratory (IFRA F-5)	PROC 15

#### 3.2. Conditions of use affecting exposure

##### 3.2.1. Control of environmental exposure: Formulation of Household Care/Air Freshners products (medium scale) (ERC 2)

Amount used, frequency and duration of use (or from service life)
Daily amount per site <= 0.08 tonnes/day

## Eucalyptus globulus, ext.,

Annual amount per site <= 20.0 tonnes/year
<b>Technical and organisational conditions and measures</b>
<i>Type of process: Substance applied in aqueous process solution with negligible volatilization</i>
<i>Indoor use</i>
<i>Equipment cleaning with reduced emissions to wastewater</i>
<i>Process efficiency: Process optimized for efficient use of raw materials.</i>
<b>Conditions and measures related to sewage treatment plant</b>
Estimated substance removal from wastewater via domestic sewage treatment 88.4 %
Assumed domestic sewage treatment plant flow >= 2000 m3/d
<b>Conditions and measures related to treatment of waste (including article waste)</b>
Dispose of waste or used sacks/containers according to local regulations.
<b>Other conditions affecting environmental exposure</b>
Receiving surface water flow >= 18000 m3/d
<i>General good practice: Trained staff, spill protection including waste reuse</i>

### 3.2.2. Control of environmental exposure: Formulation of Fine Fragrance products (small scale) (ERC 2)

<b>Amount used, frequency and duration of use (or from service life)</b>
Daily amount per site <= 0.018 tonnes/day
Annual amount per site <= 4.5 tonnes/year
Emission days : >= 250 (days/year)
<b>Technical and organisational conditions and measures</b>
<i>Type of Process: Substance applied in aqueous process solution with negligible volatilization</i>
<i>Equipment cleaning with reduced emissions to wastewater</i>
<i>Indoor use</i>

<i>Process optimized for efficient use of raw materials.</i>
<b>Conditions and measures related to sewage treatment plant</b>
Estimated substance removal from wastewater via domestic sewage treatment 88.4%
Assumed domestic sewage treatment plant flow >= 2000 m3/d
<b>Conditions and measures related to treatment of waste (including article waste)</b>
Dispose of waste or used sacks/containers according to local regulations.
<b>Other conditions affecting environmental exposure</b>
Receiving surface water flow >= 18000 m3/d

### 3.2.3. Control of environmental exposure: Formulation of Fine Fragrance products (cleaning with organic solvents) (ERC 2)

<b>Amount used, frequency and duration of use (or from service life)</b>
Daily amount per site <= 0.046 tonnes/day
Annual amount per site <= 11.5 tonnes/year
Emission days : >= 250 (days/year)
<b>Technical and organisational conditions and measures</b>
<i>Type of Process: Solvent based process</i>
<i>Indoor use</i>
<i>Equipment cleaning: Equipment cleaned with organic solvent, washings are collected and disposed of as solvent waste.</i>
<i>Process with efficient use of raw materials.</i>
<b>Conditions and measures related to sewage treatment plant</b>
Estimated substance removal from wastewater via domestic sewage treatment 100.0 %
Assumed domestic sewage treatment plant flow >= 2000 m3/d
<b>Conditions and measures related to treatment of waste (including article waste)</b>



Dispose of waste or used sacks/containers according to local regulations.
<b>Other conditions affecting environmental exposure</b>
Receiving surface water flow >= 18000 m3/d

### 3.2.4. Control of environmental exposure: Formulation of Body Care products (medium scale) (ERC 2)

<b>Amount used, frequency and duration of use (or from service life)</b>
Daily amount per site <= 0.076 tonnes/day
Annual amount per site <= 19.0 tonnes/year
Emission days : >= 250 (days/year)
<b>Technical and organisational conditions and measures</b>
<i>Type of Process: Substance applied in aqueous process solution with negligible volatilization</i>
Equipment cleaning with reduced emissions to wastewater
<i>Indoor use</i>
<i>Process optimized for efficient use of raw materials.</i>
<i>Oil water separator</i>
<b>Conditions and measures related to sewage treatment plant</b>
Estimated substance removal from wastewater via domestic sewage treatment 88.4 %
Assumed domestic sewage treatment plant flow >= 10000 m3/d
No application of sewage sludge to soil
<b>Conditions and measures related to treatment of waste (including article waste)</b>
Dispose of waste or used sacks/containers according to local regulations.
<b>Other conditions affecting environmental exposure</b>
Receiving surface water flow >= 400000 m3/d

### 3.2.5. Control of worker exposure: CS2 - Storage (IFRA F-2) (PROC 1)

<b>Product (article) characteristics</b>
Limit the substance content in the product to 25 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Use in closed process, no likelihood of exposure
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

### 3.2.6. Control of worker exposure: CS3 - Mixing operations (closed systems) in batch process including filling of equipment and sample collection (IFRA F-3) (PROC 3)

<b>Product (article) characteristics</b>
Limit the substance content in the product to 25 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 15 minutes.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Use in closed batch process (synthesis or formulation)
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically safety goggles (tested to EN166) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.;  
For further specification, refer to section 8 of the SDS.

**Other conditions affecting workers exposure**

Indoor use

Assumes process temperature up to 40.0 °C

**3.2.7. Control of worker exposure: CS4 - Mixing operations (open systems) in batch process including filling of equipment and sample collection (IFRA F-4) (PROC 5)**

**Product (article) characteristics**

Limit the substance content in the product to 25 % .

**Amount used (or contained in articles), frequency and duration of use/exposure**

Avoid carrying out activities involving exposure for more than 1 hour.

**Technical and organisational conditions and measures**

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .

Local exhaust ventilation - efficiency of at least 90.0 %

*Advanced (industrial) exposure controls assumed.*

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear chemically safety goggles (tested to EN166) in combination with 'basic' employee training.;  
For further specification, refer to section 8 of the SDS.

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.;  
For further specification, refer to section 8 of the SDS.

**Other conditions affecting workers exposure**

Indoor use

Assumes process temperature up to 40.0 °C

**3.2.8. Control of worker exposure: CS7 - Equipment cleaning and maintenance (IFRA F-7) (PROC 8a)**

**Product (article) characteristics**

Eucalyptus globulus, ext.,

Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically safety goggles (tested to EN166) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**3.2.9. Control of worker exposure: CS1 - Material transfers from/to vessel/container at dedicated facility (IFRA F-1). (PROC 8b)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 25 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Use in semi-closed process with opportunity for exposure
Local exhaust ventilation - efficiency of at least 95.0 %
<i>Advanced (industrial) exposure controls assumed.</i>

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically safety goggles (tested to EN166) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C

### 3.2.10. Control of worker exposure: CS6 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (IFRA F-6) (PROC 9)

Product (article) characteristics
Limit the substance content in the product to 1 % .
Amount used (or contained in articles), frequency and duration of use/exposure
Avoid carrying out activities involving exposure for more than 1 hour.
Technical and organisational conditions and measures
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Use in semi-closed process with opportunity for exposure
<i>Advanced (industrial) exposure controls assumed.</i>
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C

### 3.2.11. Control of worker exposure: CS8 - Production of preparations or articles by tableting, compression, extrusion, pelletisation (AISE M-8) (PROC 14)

## Eucalyptus globulus, ext.,

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 4 hours.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Local exhaust ventilation - efficiency of at least 80.0 %
<i>Basic (professional) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

### 3.2.12. Control of worker exposure: CS5 - QC laboratory (IFRA F-5) (PROC 15)

<b>Product (article) characteristics</b>
Limit the substance content in the product to 25 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 15 minutes.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>

## Eucalyptus globulus, ext.,

Wear chemically safety goggles (tested to EN166) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

### 3.3. Exposure estimation and reference to its source

#### 3.3.1. Environmental release and exposure: Formulation of Household Care/Air Freshners products (medium scale) (ERC 2)

Release route	Release rate	Release estimation method
<b>Water</b>	0.16 kg/day	SpERC based  AISE 2.1k.v2 - AISE 2.1k.v2  Industrial use in formulation of liquid cleaning and maintenance products: High Viscosity (medium scale) - Formulation of liquid Detergents/ Maintenance Products: High Viscosity (medium scale)
<b>Air</b>	0 kg/day	SpERC based  same as above
<b>Soil</b>	0 kg/day	SpERC based  same as above

Protection target	Exposure estimate (based on: EUSES 2.1.2)	RCR
Freshwater	0.001 mg/L	0.509
Sediment (freshwater)	0.031 mg/kg dw	0.046
Marine water	1.024E-4 mg/L	0.502
Sediment (marine water)	0.003 mg/kg dw	0.046

Eucalyptus globulus, ext.,

Protection target	Exposure estimate (based on: EUSES 2.1.2)	RCR
Predator (freshwater)	0.364 mg/kg ww	0.018
Predator (marine water)	0.035 mg/kg ww	< 0.01
Top predator (marine water)	0.013 mg/kg ww	< 0.01
Sewage treatment plant	0.009 mg/L	< 0.01
Agricultural soil	0.005 mg/kg dw	0.041
Predator (terrestrial)	0.001 mg/kg ww	< 0.01
Man via environment - Inhalation	8.093E-6 mg/m <sup>3</sup>	< 0.01
Man via environment - Oral	0.001 mg/kg bw/day	< 0.01

**3.3.2. Environmental release and exposure: Formulation of Fine Fragrance products (small scale) (ERC 2)**

Release route	Release rate	Release estimation method
<b>Water</b>	0.27 kg/day	SpERC based  Cosmetics Europe 2.1d.v2 - Cosmetics Europe 2.1d.v2  Industrial use in formulation of liquid water-borne cosmetic products - fine fragrances - cleaning with water (medium scale) - Formulation of fine fragrances - cleaning with water (medium scale)
<b>Air</b>	0 kg/day	SpERC based  same as above
<b>Soil</b>	0 kg/day	SpERC based  same as above



Eucalyptus globulus, ext.,

Protection target	Exposure estimate (based on: EUSES 2.1.2)	RCR
Freshwater	0.002 mg/L	0.823
Sediment (freshwater)	0.05 mg/kg dw	0.075
Marine water	1.664E-4 mg/L	0.816
Sediment (marine water)	0.005 mg/kg dw	0.075
Predator (freshwater)	0.551 mg/kg ww	0.028
Predator (marine water)	0.054 mg/kg ww	< 0.01
Top predator (marine water)	0.017 mg/kg ww	< 0.01
Sewage treatment plant	0.016 mg/L	< 0.01
Agricultural soil	0.009 mg/kg dw	0.069
Predator (terrestrial)	0.002 mg/kg ww	< 0.01
Man via environment - Inhalation	8.6E-6 mg/m <sup>3</sup>	< 0.01
Man via environment - Oral	0.002 mg/kg bw/day	< 0.01

**3.3.3. Environmental release and exposure: Formulation of Fine Fragrance products (cleaning with organic solvents) (ERC 2)**

Release route	Release rate	Release estimation method
<b>Water</b>	0 kg/day	SpERC based  Cosmetics Europe 2.2c.v2 - Cosmetics Europe 2.2c.v2  Industrial use in formulation of cosmetic products which involve cleaning of manufacturing equipment with organic solvents - (small scale) - Formulation of cosmetic products involving cleaning with organic solvents (small scale)
<b>Air</b>	0 kg/day	SpERC based  same as above
<b>Soil</b>	0 kg/day	SpERC based

Eucalyptus globulus, ext.,

Release route	Release rate	Release estimation method
		same as above

Protection target	Exposure estimate (based on: EUSES 2.1.2)	RCR
Freshwater	1.084E-4 mg/L	0.053
Sediment (freshwater)	0.003 mg/kg dw	< 0.01
Marine water	9.43E-6 mg/L	0.046
Sediment (marine water)	2.795E-4 mg/kg dw	< 0.01
Predator (freshwater)	0.092 mg/kg ww	< 0.01
Predator (marine water)	0.008 mg/kg ww	< 0.01
Top predator (marine water)	0.008 mg/kg ww	< 0.01
Sewage treatment plant	0 mg/L	< 0.01
Agricultural soil	6.649E-6 mg/kg dw	< 0.01
Predator (terrestrial)	2.498E-5 mg/kg ww	< 0.01
Man via environment - Inhalation	7.356E-6 mg/m <sup>3</sup>	< 0.01
Man via environment - Oral	1.554E-4 mg/kg bw/day	< 0.01

### 3.3.4. Environmental release and exposure: Formulation of Body Care products (medium scale) (ERC 2)

Release route	Release rate	Release estimation method
<b>Water</b>	1.52 kg/day	SpERC based Cosmetics Europe 2.1i.v2 - Cosmetics Europe 2.1i.v2

Eucalyptus globulus, ext.,

Release route	Release rate	Release estimation method
		Industrial use in formulation of liquid water-borne cosmetic products - non-liquid creams (medium scale) - Formulation of non-liquid creams (medium scale)
<b>Air</b>	0 kg/day	SpERC based  same as above
<b>Soil</b>	0 kg/day	SpERC based  same as above

Protection target	Exposure estimate (based on: EUSES 2.1.2)	RCR
Freshwater	5.395E-4 mg/L	0.264
Sediment (freshwater)	0.016 mg/kg dw	0.024
Marine water	1.862E-4 mg/L	0.913
Sediment (marine water)	0.006 mg/kg dw	0.084
Predator (freshwater)	0.218 mg/kg ww	0.011
Predator (marine water)	0.06 mg/kg ww	< 0.01
Top predator (marine water)	0.018 mg/kg ww	< 0.01
Sewage treatment plant	0.018 mg/L	< 0.01
Agricultural soil	7.872E-6 mg/kg dw	< 0.01
Predator (terrestrial)	2.597E-5 mg/kg ww	< 0.01
Man via environment - Inhalation	1.434E-5 mg/m <sup>3</sup>	< 0.01
Man via environment - Oral	5.779E-4 mg/kg bw/day	< 0.01

### 3.3.5. Worker exposure: CS2 - Storage (IFRA F-2) (PROC 1)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.005 mg/m <sup>3</sup> (TRA Workers 3.0)	< 0.01
Dermal, systemic, long-term	0.02 mg/kg bw/day (TRA Workers 3.0)	0.02
Combined routes, systemic, long-term		0.022

**3.3.6. Worker exposure: CS3 - Mixing operations (closed systems) in batch process including filling of equipment and sample collection (IFRA F-3) (PROC 3)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.81 mg/m <sup>3</sup> (TRA Workers 3.0)	0.23
Dermal, systemic, long-term	0.041 mg/kg bw/day (TRA Workers 3.0)	0.041
Combined routes, systemic, long-term		0.272

**3.3.7. Worker exposure: CS4 - Mixing operations (open systems) in batch process including filling of equipment and sample collection (IFRA F-4) (PROC 5)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.27 mg/m <sup>3</sup> (TRA Workers 3.0)	0.077
Dermal, systemic, long-term	0.411 mg/kg bw/day (TRA Workers 3.0)	0.411
Combined routes, systemic, long-term		0.488

**3.3.8. Worker exposure: CS7 - Equipment cleaning and maintenance (IFRA F-7) (PROC 8a)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.9 mg/m <sup>3</sup> (TRA Workers 3.0)	0.256
Dermal, systemic, long-term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.137
Combined routes, systemic, long-term		0.393

**3.3.9. Worker exposure: CS1 - Material transfers from/to vessel/container at dedicated facility (IFRA F-1). (PROC 8b)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.135 mg/m <sup>3</sup> (TRA Workers 3.0)	0.038

Route of exposure and type of effects	Exposure estimate	RCR
Dermal, systemic, long-term	0.411 mg/kg bw/day (TRA Workers 3.0)	0.411
Combined routes, systemic, long-term		0.45

**3.3.10. Worker exposure: CS6 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (IFRA F-6) (PROC 9)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.45 mg/m <sup>3</sup> (TRA Workers 3.0)	0.128
Dermal, systemic, long-term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.069
Combined routes, systemic, long-term		0.196

**3.3.11. Worker exposure: CS8 - Production of preparations or articles by tableting, compression, extrusion, pelletisation (AISE M-8) (PROC 14)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.54 mg/m <sup>3</sup> (TRA Workers 3.0)	0.153
Dermal, systemic, long-term	0.034 mg/kg bw/day (TRA Workers 3.0)	0.034
Combined routes, systemic, long-term		0.188

**3.3.12. Worker exposure: CS5 - QC laboratory (IFRA F-5) (PROC 15)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	1.35 mg/m <sup>3</sup> (TRA Workers 3.0)	0.383
Dermal, systemic, long-term	0.02 mg/kg bw/day (TRA Workers 3.0)	0.02
Combined routes, systemic, long-term		0.404

**3.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

<b>Scaling method</b>
The workers exposure and environmental emissions have been evaluated using TRA Workers 3.0 and EUSES 2.1.2, respectively.

Eucalyptus globulus, ext.,

<b>Health</b>
<p>Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures / Operational Conditions outlined in Section 2 are implemented.</p> <p>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.</p>
<b>Environment</b>
<p>Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.</p>

## 4. ES 4: Use at industrial site; GES3 - Industrial end-use of washing and cleaning products

### 4.1. Title section

Environment	
CS 1: GES3 - Industrial end-use of washing and cleaning products	ERC 4
Worker	
CS 2: Industrial use of Food beverage and pharmacos products; Process cleaner; PROC 1 Cleaning In place (CIP) process (AISE-P801); Use Phase - Industrial use of Food beverage and pharmacos products; Defoaming product; Automatic process (AISE-P805); Use Phase	
CS 3: Industrial use of Laundry products; Laundry detergent; Automatic process PROC 2 (AISE-P101); Use Phase - Industrial use of Laundry products; Conditioner (softener/starch); Automatic process (AISE-P104); Use Phase - Industrial use of Laundry products; Laundry aid (gasing); Automatic process (AISE-P107); Use Phase - Industrial use of Laundry products; Laundry aid (non-gasing); Automatic process (AISE-P110); Use Phase	
CS 4: Industrial use of pharmacos products; Disinfection product; Semi- PROC 4 automatic process (AISE-P810); Use Phase	
CS 5: Industrial use of Vehicle cleaning Products; Train cleaner; Semi-Automatic PROC 4 process (AISE-P707); Use Phase - Industrial use of Vehicle cleaning Products; Aeroplane cleaner; Semi-Automatic process (AISE-P708); Use Phase -Industrial Use of Vehicle cleaning Products; Car wash product; Semi-Automatic process (AISE-P709); Use Phase - Industrial Use of Vehicle cleaning Products; Dewaxing product; Semi-Automatic process (AISE-P712); Use Phase Industrial use of Food beverage and pharmacos products; Process cleaner; Semi closed cleaning process (AISE-P802); Use Phase	
CS 6: Industrial use of Water treatment Products; Preservation and sanitation PROC 4 agent ; Drink and pool water (AISE-P904); Use Phase - Industrial use of Water treatment Products; Sanitation agent; Waste water (AISE-P905); Use Phase	
CS 7: Industrial Use of Vehicle cleaning Products; Car wash product; Spray and PROC 7 rinse process (AISE-P710); Use Phase	
CS 8: Industrial Use of Vehicle cleaning Products; Car wash product; Spray and PROC 7 wipe process (AISE-P711); Use Phase - Industrial Use of Vehicle cleaning Products; Boat cleaner; Spray and wipe process (AISE-P714); Use Phase	

CS 9: Industrial use of Food beverage and pharmacos products; Foam cleaner; Semi-Automatic with venting process (AISE-P806); Use Phase	PROC 7
CS 10: Industrial use of Food beverage and pharmacos products; Chain maintenance product; Automatic spray process (AISE-P803); Use Phase - Industrial use of Food beverage and pharmacos products; Foam cleaner; Semi-Automatic without venting process (AISE-P807); Use Phase - Industrial use of Food beverage and pharmacos products; Animal housing care; Semi-Automatic process (AISE-P809); Use Phase - Industrial use of Food beverage and pharmacos products; Disinfection product; Fogging and gassing Semi-automatic process (AISE-P811); Use Phase	PROC 7
CS 11: Industrial Use of Façade/surface Cleaning Products; Façade/surface cleaner; High pressure process (AISE-P906); Use Phase - Industrial Use of Façade/surface Cleaning Products; Façade/surface cleaner; Medium pressure process (AISE-P907); Use Phase	PROC 7
CS 12: Industrial use of Laundry products; Laundry detergent; Automatic process (AISE-P101); Preparatory Phase - Industrial use of Laundry products; Conditioner (softener/starch); Automatic process (AISE-P104); Preparatory Phase - Industrial use of Laundry products; Laundry aid (gasing); Automatic process (AISE-P107); Preparatory Phase - Industrial use of Laundry products; Laundry aid (non-gasing); Automatic process (AISE-P110); Preparatory Phase - Industrial use of Food beverage and pharmacos products; Process cleaner; Cleaning In place (CIP) process (AISE-P801); Preparatory Phase - Industrial use of Food beverage and pharmacos products; Process cleaner; Semi closed cleaning process (AISE-P802); Preparatory Phase - Industrial use of Food beverage and pharmacos products; Chain maintenance product; Automatic spray process (AISE-P803); Preparatory Phase - Industrial use of Food beverage and pharmacos products; Defoaming product; Automatic process (AISE-P805); Preparatory Phase	PROC 8b
CS 13: Industrial use of Water treatment Products; Preservation and sanitation agent ; Drink and pool water (AISE-P904); Preparatory Phase - Industrial use of Water treatment Products; Sanitation agent; Waste water (AISE-P905); Preparatory Phase - Industrial Use of Façade/surface Cleaning Products; Façade/surface cleaner; High pressure process (AISE-P906); Preparatory Phase - Industrial Use of Façade/surface Cleaning Products; Façade/surface cleaner; Medium pressure process (AISE-P907); Preparatory Phase	PROC 8b
CS 14: Industrial use of Vehicle cleaning Products; Train cleaner; Semi-Automatic process (AISE-P707); Preparatory Phase - Industrial use of Vehicle cleaning Products; Aeroplane cleaner; Semi-Automatic process (AISE-P708); Preparatory Phase - Industrial Use of Vehicle cleaning Products; Car wash product; Semi-Automatic process (AISE-P709); Preparatory Phase - Industrial	PROC 8b



Use of Vehicle cleaning Products; Car wash product; Spray and rinse process (AISE-P710); Preparatory Phase - Industrial Use of Vehicle cleaning Products; Dewaxing product; Semi-Automatic process (AISE-P712); Preparatory Phase - Industrial use of Food beverage and pharmacos products; Foam cleaner; Semi-Automatic without venting process (AISE-P807); Preparatory Phase - Industrial use of Food beverage and pharmacos products; Disinfection product; Fogging and gassing Semi-automatic process (AISE-P811); Preparatory Phase	
CS 15: Industrial Use of Vehicle cleaning Products; Car wash product; Spray and wipe process (AISE-P711); Preparatory Phase - Industrial Use of Vehicle cleaning Products; Boat cleaning; semi automatic (AISE-P713); Preparatory Phase - Industrial Use of Vehicle cleaning Products; Boat cleaner; Spray and wipe process (AISE-P714); Preparatory Phase	PROC 8b
CS 16: Industrial use of Food beverage and pharmacos products; Animal housing care; Semi-Automatic process (AISE-P809); Preparatory Phase - Industrial use of pharmacos products; Disinfection product; Semi-automatic process (AISE-P810); Preparatory Phase	PROC 8b
CS 17: Industrial use of Food beverage and pharmacos products; Foam cleaner; Semi-Automatic with venting process (AISE-P806); Preparatory Phase	PROC 8b
CS 18: Industrial Use of Vehicle cleaning Products; Car wash product; Spray and wipe process (AISE-P711); Use Phase - Industrial Use of Vehicle cleaning Products; Boat cleaning; semi automatic (AISE-P713); Use Phase - Industrial Use of Vehicle cleaning Products; Boat cleaner; Spray and wipe process (AISE-P714); Use Phase	PROC 10
CS 19: Industrial use of Food beverage and pharmacos products; Chain maintenance product; Automatic drip and brush process (AISE-P804); Use Phase	PROC 13

## 4.2. Conditions of use affecting exposure

### 4.2.1. Control of environmental exposure: GES3 - Industrial end-use of washing and cleaning products (ERC 4)

Amount used, frequency and duration of use (or from service life)
Daily amount per site <= 0.0014 tonnes/day
Annual amount per site <= 0.3 tonnes/year
Emission days : >= 250 (days/year)

<b>Conditions and measures related to sewage treatment plant</b>
Estimated substance removal from wastewater via domestic sewage treatment 88.4 %
Assumed domestic sewage treatment plant flow $\geq 10000 \text{ m}^3/\text{d}$
<b>Conditions and measures related to treatment of waste (including article waste)</b>
Dispose of waste or used sacks/containers according to local regulations.
<b>Other conditions affecting environmental exposure</b>
Receiving surface water flow $\geq 400000 \text{ m}^3/\text{d}$

**4.2.2. Control of worker exposure: Industrial use of Food beverage and pharmacos products; Process cleaner; Cleaning In place (CIP) process (AISE-P801); Use Phase - Industrial use of Food beverage and pharmacos products; Defoaming product; Automatic process (AISE-P805); Use Phase (PROC 1)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
<i>Covers daily exposures up to 8 hours.</i>
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Use in closed process, no likelihood of exposure
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**4.2.3. Control of worker exposure: Industrial use of Laundry products; Laundry detergent; Automatic process (AISE-P101); Use Phase - Industrial use of Laundry products; Conditioner (softener/starch); Automatic process (AISE-P104); Use Phase - Industrial use of Laundry products; Laundry aid (gasing); Automatic process (AISE-P107); Use Phase - Industrial use of Laundry products; Laundry aid (non-gasing); Automatic process (AISE-P110); Use Phase (PROC 2)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
<i>Covers daily exposures up to 8 hours.</i>
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Use in closed, continuous process with occasional controlled exposure
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

#### 4.2.4. Control of worker exposure: Industrial use of pharmacos products; Disinfection product; Semi-automatic process (AISE-P810); Use Phase (PROC 4)

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 4 hours.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Use in semi-closed process with opportunity for exposure
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C

**4.2.5. Control of worker exposure: Industrial use of Vehicle cleaning Products; Train cleaner; Semi-Automatic process (AISE-P707); Use Phase - Industrial use of Vehicle cleaning Products; Aeroplane cleaner; Semi-Automatic process (AISE-P708); Use Phase -Industrial Use of Vehicle cleaning Products; Car wash product; Semi-Automatic process (AISE-P709); Use Phase - Industrial Use of Vehicle cleaning Products; Dewaxing product; Semi-Automatic process (AISE-P712); Use Phase Industrial use of Food beverage and pharmacos products; Process cleaner; Semi closed cleaning process (AISE-P802); Use Phase (PROC 4)**

Product (article) characteristics
Limit the substance content in the product to 1 % .
Amount used (or contained in articles), frequency and duration of use/exposure
<i>Covers daily exposures up to 8 hours.</i>
Technical and organisational conditions and measures
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Use in semi-closed process with opportunity for exposure
<i>Advanced (industrial) exposure controls assumed.</i>
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C

**4.2.6. Control of worker exposure: Industrial use of Water treatment Products; Preservation and sanitation agent ; Drink and pool water (AISE-P904); Use Phase -**

**Industrial use of Water treatment Products; Sanitation agent; Waste water (AISE-P905); Use Phase (PROC 4)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 4 hours.
<b>Technical and organisational conditions and measures</b>
Use in semi-closed process with opportunity for exposure
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Ensure operation is undertaken outdoors.
Assumes process temperature up to 40.0 °C

**4.2.7. Control of worker exposure: Industrial Use of Vehicle cleaning Products; Car wash product; Spray and rinse process (AISE-P710); Use Phase (PROC 7)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>

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Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

### 4.2.8. Control of worker exposure: Industrial Use of Vehicle cleaning Products; Car wash product; Spray and wipe process (AISE-P711); Use Phase - Industrial Use of Vehicle cleaning Products; Boat cleaner; Spray and wipe process (AISE-P714); Use Phase (PROC 7)

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Ensure operation is undertaken outdoors.
Assumes process temperature up to 40.0 °C

### 4.2.9. Control of worker exposure: Industrial use of Food beverage and pharmacos products; Foam cleaner; Semi-Automatic with venting process (AISE-P806); Use Phase (PROC 7)

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 4 hours.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Local exhaust ventilation - efficiency of at least 95.0 %
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**4.2.10. Control of worker exposure: Industrial use of Food beverage and pharmacos products; Chain maintenance product; Automatic spray process (AISE-P803); Use Phase - Industrial use of Food beverage and pharmacos products; Foam cleaner; Semi-Automatic without venting process (AISE-P807); Use Phase - Industrial use of Food beverage and pharmacos products; Animal housing care; Semi-Automatic process (AISE-P809); Use Phase - Industrial use of Food beverage and pharmacos products; Disinfection product; Fogging and gassing Semi-automatic process (AISE-P811); Use Phase (PROC 7)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.

<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 95.0 %; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**4.2.11. Control of worker exposure: Industrial Use of Façade/surface Cleaning Products; Façade/surface cleaner; High pressure process (AISE-P906); Use Phase - Industrial Use of Façade/surface Cleaning Products; Façade/surface cleaner; Medium pressure process (AISE-P907); Use Phase (PROC 7)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 95.0 %; For further specification, refer to section 8 of the SDS.



Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C

**4.2.12. Control of worker exposure: Industrial use of Laundry products; Laundry detergent; Automatic process (AISE-P101); Preparatory Phase - Industrial use of Laundry products; Conditioner (softner/starch); Automatic process (AISE-P104); Preparatory Phase - Industrial use of Laundry products; Laundry aid (gasing); Automatic process (AISE-P107); Preparatory Phase - Industrial use of Laundry products; Laundry aid (non-gasing); Automatic process (AISE-P110); Preparatory Phase - Industrial use of Food beverage and pharmacos products; Process cleaner; Cleaning In place (CIP) process (AISE-P801); Preparatory Phase - Industrial use of Food beverage and pharmacos products; Process cleaner; Semi closed cleaning process (AISE-P802); Preparatory Phase - Industrial use of Food beverage and pharmacos products; Chain maintenance product; Automatic spray process (AISE-P803); Preparatory Phase - Industrial use of Food beverage and pharmacos products; Defoaming product; Automatic process (AISE-P805); Preparatory Phase (PROC 8b)**

Product (article) characteristics
Limit the substance content in the product to 1 % .
Amount used (or contained in articles), frequency and duration of use/exposure
Avoid carrying out activities involving exposure for more than 15 minutes.
Technical and organisational conditions and measures
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Use in semi-closed process with opportunity for exposure
<i>Advanced (industrial) exposure controls assumed.</i>
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C

**4.2.13. Control of worker exposure: Industrial use of Water treatment Products;**

**Preservation and sanitation agent ; Drink and pool water (AISE-P904); Preparatory Phase - Industrial use of Water treatment Products; Sanitation agent; Waste water (AISE-P905); Preparatory Phase - Industrial Use of Façade/surface Cleaning Products; Façade/surface cleaner; High pressure process (AISE-P906); Preparatory Phase - Industrial Use of Façade/surface Cleaning Products; Façade/surface cleaner; Medium pressure process (AISE-P907); Preparatory Phase (PROC 8b)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 15 minutes.
<b>Technical and organisational conditions and measures</b>
Use in semi-closed process with opportunity for exposure
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.
<b>Other conditions affecting workers exposure</b>
Ensure operation is undertaken outdoors.
Assumes process temperature up to 40.0 °C

**4.2.14. Control of worker exposure: Industrial use of Vehicle cleaning Products; Train cleaner; Semi-Automatic process (AISE-P707); Preparatory Phase - Industrial use of Vehicle cleaning Products; Aeroplane cleaner; Semi-Automatic process (AISE-P708); Preparatory Phase - Industrial Use of Vehicle cleaning Products; Car wash product; Semi-Automatic process (AISE-P709); Preparatory Phase - Industrial Use of Vehicle cleaning Products; Car wash product; Spray and rinse process (AISE-P710); Preparatory Phase - Industrial Use of Vehicle cleaning Products; Dewaxing product; Semi-Automatic process (AISE-P712); Preparatory Phase - Industrial use of Food beverage and pharmacos products; Foam cleaner; Semi-Automatic without venting process (AISE-P807); Preparatory Phase - Industrial use of Food beverage and pharmacos products; Disinfection product; Fogging and gassing Semi-automatic process (AISE-P811); Preparatory Phase (PROC 8b)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .

<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Use in semi-closed process with opportunity for exposure
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**4.2.15. Control of worker exposure: Industrial Use of Vehicle cleaning Products; Car wash product; Spray and wipe process (AISE-P711); Preparatory Phase - Industrial Use of Vehicle cleaning Products; Boat cleaning; semi automatic (AISE-P713); Preparatory Phase - Industrial Use of Vehicle cleaning Products; Boat cleaner; Spray and wipe process (AISE-P714); Preparatory Phase (PROC 8b)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Use in semi-closed process with opportunity for exposure
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.

Other conditions affecting workers exposure
Ensure operation is undertaken outdoors.
Assumes process temperature up to 40.0 °C

**4.2.16. Control of worker exposure: Industrial use of Food beverage and pharmacos products; Animal housing care; Semi-Automatic process (AISE-P809); Preparatory Phase - Industrial use of pharmacos products; Disinfection product; Semi-automatic process (AISE-P810); Preparatory Phase (PROC 8b)**

Product (article) characteristics
Limit the substance content in the product to 1 % .
Amount used (or contained in articles), frequency and duration of use/exposure
Avoid carrying out activities involving exposure for more than 1 hour.
Technical and organisational conditions and measures
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Use in semi-closed process with opportunity for exposure
<i>Advanced (industrial) exposure controls assumed.</i>
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C

**4.2.17. Control of worker exposure: Industrial use of Food beverage and pharmacos products; Foam cleaner; Semi-Automatic with venting process (AISE-P806); Preparatory Phase (PROC 8b)**

Product (article) characteristics
Limit the substance content in the product to 1 % .
Amount used (or contained in articles), frequency and duration of use/exposure

Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Use in semi-closed process with opportunity for exposure
Local exhaust ventilation - efficiency of at least 95.0 %
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**4.2.18. Control of worker exposure: Industrial Use of Vehicle cleaning Products; Car wash product; Spray and wipe process (AISE-P711); Use Phase - Industrial Use of Vehicle cleaning Products; Boat cleaning; semi automatic (AISE-P713); Use Phase - Industrial Use of Vehicle cleaning Products; Boat cleaner; Spray and wipe process (AISE-P714); Use Phase (PROC 10)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
<i>Covers daily exposures up to 8 hours.</i>
<b>Technical and organisational conditions and measures</b>
<i>Advanced (industrial) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; For further specification, refer to section 8 of the SDS.

Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.

**Other conditions affecting workers exposure**

Ensure operation is undertaken outdoors.

Assumes process temperature up to 40.0 °C

**4.2.19. Control of worker exposure: Industrial use of Food beverage and pharmacos products; Chain maintenance product; Automatic drip and brush process (AISE-P804); Use Phase (PROC 13)**

**Product (article) characteristics**

Limit the substance content in the product to 1 % .

**Amount used (or contained in articles), frequency and duration of use/exposure**

*Covers daily exposures up to 8 hours.*

**Technical and organisational conditions and measures**

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .

Local exhaust ventilation - efficiency of at least 90.0 %

*Advanced (industrial) exposure controls assumed.*

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374.

**Other conditions affecting workers exposure**

Indoor use

Assumes process temperature up to 40.0 °C

**4.3. Exposure estimation and reference to its source**

**4.3.1. Environmental release and exposure: GES3 - Industrial end-use of washing and cleaning products (ERC 4)**

Release route	Release rate	Release estimation method
Water	1.36 kg/day	SpERC based

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Release route	Release rate	Release estimation method
		AISE spERC 4.1.v1 - AISE spERC 4.1.v1  AISE - Industrial use of Water-borne Processing Aids - AISE - Industrial use of Water-borne Processing Aids
<b>Air</b>	0 kg/day	SpERC based  same as above
<b>Soil</b>	0 kg/day	SpERC based  same as above

Protection target	Exposure estimate (based on: EUSES 2.1.2)	RCR
Freshwater	4.942E-4 mg/L	0.242
Sediment (freshwater)	0.015 mg/kg dw	0.022
Marine water	1.676E-4 mg/L	0.822
Sediment (marine water)	0.005 mg/kg dw	0.075
Predator (freshwater)	0.192 mg/kg ww	< 0.01
Predator (marine water)	0.049 mg/kg ww	< 0.01
Top predator (marine water)	0.016 mg/kg ww	< 0.01
Sewage treatment plant	0.016 mg/L	< 0.01
Agricultural soil	0.009 mg/kg dw	0.069
Predator (terrestrial)	0.002 mg/kg ww	< 0.01
Man via environment - Inhalation	1.287E-5 mg/m <sup>3</sup>	< 0.01
Man via environment - Oral	5.166E-4 mg/kg bw/day	< 0.01

**4.3.2. Worker exposure: Industrial use of Food beverage and pharmacos products; Process cleaner; Cleaning In place (CIP) process (AISE-P801); Use Phase - Industrial use of Food beverage and pharmacos products; Defoaming product; Automatic process (AISE-P805); Use Phase (PROC 1)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.004 mg/m <sup>3</sup> (TRA Workers 3.0)	< 0.01
Dermal, systemic, long-term	0.003 mg/kg bw/day (TRA Workers 3.0)	< 0.01
Combined routes, systemic, long-term		< 0.01

**4.3.3. Worker exposure: Industrial use of Laundry products; Laundry detergent; Automatic process (AISE-P101); Use Phase - Industrial use of Laundry products; Conditioner (softner/starch); Automatic process (AISE-P104); Use Phase - Industrial use of Laundry products; Laundry aid (gasing); Automatic process (AISE-P107); Use Phase - Industrial use of Laundry products; Laundry aid (non-gasing); Automatic process (AISE-P110); Use Phase (PROC 2)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.45 mg/m <sup>3</sup> (TRA Workers 3.0)	0.128
Dermal, systemic, long-term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.137
Combined routes, systemic, long-term		0.265

**4.3.4. Worker exposure: Industrial use of pharmacos products; Disinfection product; Semi-automatic process (AISE-P810); Use Phase (PROC 4)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	1.35 mg/m <sup>3</sup> (TRA Workers 3.0)	0.383
Dermal, systemic, long-term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.069
Combined routes, systemic, long-term		0.452

**4.3.5. Worker exposure: Industrial use of Vehicle cleaning Products; Train cleaner; Semi-Automatic process (AISE-P707); Use Phase - Industrial use of Vehicle cleaning Products; Aeroplane cleaner; Semi-Automatic process (AISE-P708); Use Phase - Industrial Use of Vehicle cleaning Products; Car wash product; Semi-Automatic process (AISE-P709); Use Phase - Industrial Use of Vehicle cleaning Products; Dewaxing product; Semi-Automatic process (AISE-P712); Use Phase Industrial use of Food beverage and pharmacos products; Process cleaner; Semi closed cleaning process (AISE-P802); Use Phase (PROC 4)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.225 mg/m <sup>3</sup> (TRA Workers 3.0)	0.064



Route of exposure and type of effects	Exposure estimate	RCR
Dermal, systemic, long-term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.069
Combined routes, systemic, long-term		0.132

**4.3.6. Worker exposure: Industrial use of Water treatment Products; Preservation and sanitation agent ; Drink and pool water (AISE-P904); Use Phase - Industrial use of Water treatment Products; Sanitation agent; Waste water (AISE-P905); Use Phase (PROC 4)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	1.35 mg/m <sup>3</sup> (TRA Workers 3.0)	0.383
Dermal, systemic, long-term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.069
Combined routes, systemic, long-term		0.452

**4.3.7. Worker exposure: Industrial Use of Vehicle cleaning Products; Car wash product; Spray and rinse process (AISE-P710); Use Phase (PROC 7)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.9 mg/m <sup>3</sup> (TRA Workers 3.0)	0.256
Dermal, systemic, long-term	0.214 mg/kg bw/day (TRA Workers 3.0)	0.214
Combined routes, systemic, long-term		0.47

**4.3.8. Worker exposure: Industrial Use of Vehicle cleaning Products; Car wash product; Spray and wipe process (AISE-P711); Use Phase - Industrial Use of Vehicle cleaning Products; Boat cleaner; Spray and wipe process (AISE-P714); Use Phase (PROC 7)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.9 mg/m <sup>3</sup> (TRA Workers 3.0)	0.256
Dermal, systemic, long-term	0.214 mg/kg bw/day (TRA Workers 3.0)	0.214
Combined routes, systemic, long-term		0.47

**4.3.9. Worker exposure: Industrial use of Food beverage and pharmacos products; Foam cleaner; Semi-Automatic with venting process (AISE-P806); Use Phase (PROC 7)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.135 mg/m <sup>3</sup> (TRA Workers 3.0)	0.038
Dermal, systemic, long-term	0.214 mg/kg bw/day (TRA Workers 3.0)	0.214
Combined routes, systemic, long-term		0.253

**4.3.10. Worker exposure: Industrial use of Food beverage and pharmacos products; Chain maintenance product; Automatic spray process (AISE-P803); Use Phase - Industrial use of Food beverage and pharmacos products; Foam cleaner; Semi-Automatic without venting process (AISE-P807); Use Phase - Industrial use of Food beverage and pharmacos products; Animal housing care; Semi-Automatic process (AISE-P809); Use Phase - Industrial use of Food beverage and pharmacos products; Disinfection product; Fogging and gassing Semi-automatic process (AISE-P811); Use Phase (PROC 7)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.45 mg/m <sup>3</sup> (TRA Workers 3.0)	0.128
Dermal, systemic, long-term	0.214 mg/kg bw/day (TRA Workers 3.0)	0.214
Combined routes, systemic, long-term		0.342

**4.3.11. Worker exposure: Industrial Use of Façade/surface Cleaning Products; Façade/surface cleaner; High pressure process (AISE-P906); Use Phase - Industrial Use of Façade/surface Cleaning Products; Façade/surface cleaner; Medium pressure process (AISE-P907); Use Phase (PROC 7)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.45 mg/m <sup>3</sup> (TRA Workers 3.0)	0.128
Dermal, systemic, long-term	0.214 mg/kg bw/day (TRA Workers 3.0)	0.214
Combined routes, systemic, long-term		0.342

**4.3.12. Worker exposure: Industrial use of Laundry products; Laundry detergent; Automatic process (AISE-P101); Preparatory Phase - Industrial use of Laundry products; Conditioner (softener/starch); Automatic process (AISE-P104); Preparatory Phase - Industrial use of Laundry products; Laundry aid (gasing); Automatic process (AISE-P107); Preparatory Phase - Industrial use of Laundry products; Laundry aid (non-gasing); Automatic process (AISE-P110); Preparatory Phase - Industrial use of Food beverage and pharmacos products; Process cleaner; Cleaning In place (CIP) process (AISE-P801); Preparatory Phase - Industrial use of Food beverage and pharmacos products; Process cleaner; Semi closed cleaning process (AISE-P802); Preparatory Phase - Industrial use of Food beverage and pharmacos products; Chain**

**maintenance product; Automatic spray process (AISE-P803); Preparatory Phase - Industrial use of Food beverage and pharmacos products; Defoaming product; Automatic process (AISE-P805); Preparatory Phase (PROC 8b)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.225 mg/m <sup>3</sup> (TRA Workers 3.0)	0.064
Dermal, systemic, long-term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.274
Combined routes, systemic, long-term		0.338

**4.3.13. Worker exposure: Industrial use of Water treatment Products; Preservation and sanitation agent ; Drink and pool water (AISE-P904); Preparatory Phase - Industrial use of Water treatment Products; Sanitation agent; Waste water (AISE-P905); Preparatory Phase - Industrial Use of Façade/surface Cleaning Products; Façade/surface cleaner; High pressure process (AISE-P906); Preparatory Phase - Industrial Use of Façade/surface Cleaning Products; Façade/surface cleaner; Medium pressure process (AISE-P907); Preparatory Phase (PROC 8b)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.225 mg/m <sup>3</sup> (TRA Workers 3.0)	0.064
Dermal, systemic, long-term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.274
Combined routes, systemic, long-term		0.338

**4.3.14. Worker exposure: Industrial use of Vehicle cleaning Products; Train cleaner; Semi-Automatic process (AISE-P707); Preparatory Phase - Industrial use of Vehicle cleaning Products; Aeroplane cleaner; Semi-Automatic process (AISE-P708); Preparatory Phase - Industrial Use of Vehicle cleaning Products; Car wash product; Semi-Automatic process (AISE-P709); Preparatory Phase - Industrial Use of Vehicle cleaning Products; Car wash product; Spray and rinse process (AISE-P710); Preparatory Phase - Industrial Use of Vehicle cleaning Products; Dewaxing product; Semi-Automatic process (AISE-P712); Preparatory Phase - Industrial use of Food beverage and pharmacos products; Foam cleaner; Semi-Automatic without venting process (AISE-P807); Preparatory Phase - Industrial use of Food beverage and pharmacos products; Disinfection product; Fogging and gassing Semi-automatic process (AISE-P811); Preparatory Phase (PROC 8b)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.45 mg/m <sup>3</sup> (TRA Workers 3.0)	0.128
Dermal, systemic, long-term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.274
Combined routes, systemic, long-term		0.402

**4.3.15. Worker exposure: Industrial Use of Vehicle cleaning Products; Car wash product; Spray and wipe process (AISE-P711); Preparatory Phase - Industrial Use of Vehicle cleaning Products; Boat cleaning; semi automatic (AISE-P713); Preparatory Phase - Industrial Use of Vehicle cleaning Products; Boat cleaner; Spray and wipe process (AISE-P714); Preparatory Phase (PROC 8b)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.45 mg/m <sup>3</sup> (TRA Workers 3.0)	0.128
Dermal, systemic, long-term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.274
Combined routes, systemic, long-term		0.402

**4.3.16. Worker exposure: Industrial use of Food beverage and pharmacos products; Animal housing care; Semi-Automatic process (AISE-P809); Preparatory Phase - Industrial use of pharmacos products; Disinfection product; Semi-automatic process (AISE-P810); Preparatory Phase (PROC 8b)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.45 mg/m <sup>3</sup> (TRA Workers 3.0)	0.128
Dermal, systemic, long-term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.137
Combined routes, systemic, long-term		0.265

**4.3.17. Worker exposure: Industrial use of Food beverage and pharmacos products; Foam cleaner; Semi-Automatic with venting process (AISE-P806); Preparatory Phase (PROC 8b)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.022 mg/m <sup>3</sup> (TRA Workers 3.0)	< 0.01
Dermal, systemic, long-term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.274
Combined routes, systemic, long-term		0.281

**4.3.18. Worker exposure: Industrial Use of Vehicle cleaning Products; Car wash product; Spray and wipe process (AISE-P711); Use Phase - Industrial Use of Vehicle cleaning Products; Boat cleaning; semi automatic (AISE-P713); Use Phase - Industrial Use of Vehicle cleaning Products; Boat cleaner; Spray and wipe process (AISE-P714); Use Phase (PROC 10)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.45 mg/m <sup>3</sup> (TRA Workers 3.0)	0.128

Route of exposure and type of effects	Exposure estimate	RCR
Dermal, systemic, long-term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.137
Combined routes, systemic, long-term		0.265

**4.3.19. Worker exposure: Industrial use of Food beverage and pharmacos products; Chain maintenance product; Automatic drip and brush process (AISE-P804); Use Phase (PROC 13)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.45 mg/m <sup>3</sup> (TRA Workers 3.0)	0.128
Dermal, systemic, long-term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.274
Combined routes, systemic, long-term		0.402

**4.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

<b>Scaling method</b>
The workers exposure and environmental emissions have been evaluated using TRA Workers 3.0 and EUSES 2.1.2, respectively.
<b>Health</b>
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures / Operational Conditions outlined in Section 2 are implemented.  Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
<b>Environment</b>
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

## 5. ES 5: Use by professional worker; GES4 - Professional end-use of washing and cleaning products

### 5.1. Title section

Environment	
CS 1: GES4 - Professional end-use of washing and cleaning products (indoor use)	ERC 8d, ERC 8a
Worker	
CS 2: Professional Use of Laundry products ; Laundry detergent; Semi automatic process (AISE-P102); Use Phase - Professional Use of Laundry products ; Conditioner (softener/starch); Semi automatic process (AISE-P105); Use Phase - Professional Use of Laundry products ; Laundry aid (gasing); Semi automatic process (AISE-P108); Use Phase - Professional Use of Laundry products ; Laundry aid (non-gasing); Semi automatic process (AISE-P111); Use Phase - Professional Use of Dishwash products; Dishwash product; Semi-Automatic process (AISE-P203); Use Phase - Professional Use of Dishwash products; Rinse aid; Semi-Automatic process (AISE-P204); Use Phase - Professional Use of Medical Devices; Medical devices ; Semi-automatic process (AISE-P1101); Use Phase	PROC 1
CS 3: Professional Use of Dishwash products; Dishwash and rinse aid product; Automatic process (AISE-P202); Use Phase	PROC 2
CS 4: Professional Use of Laundry products ; Laundry aid (non-gasing); Manual process (AISE-P112); Use Phase	PROC 4
CS 5: Professional Use of Vehicle cleaning Products; Car wash product; Semi-Automatic process (AISE-P701); Use Phase - Professional Use of Vehicle cleaning Products; Dewaxing product; Semi-Automatic process (AISE-P704); Use Phase	PROC 4
CS 6: Professional Use of Laundry products ; Laundry detergent; Semi automatic process (AISE-P102); Preparatory Phase - Professional Use of Laundry products ; Conditioner (softener/starch); Semi automatic process (AISE-P105); Preparatory Phase - Professional Use of Laundry products ; Laundry aid (gasing); Semi automatic process (AISE-P108); Preparatory Phase - Professional Use of Laundry products ; Laundry aid (non-gasing); Semi automatic process (AISE-P111); Preparatory Phase - Professional Use of Laundry products ; Laundry aid (non-gasing); Manual process (AISE-P112); Preparatory Phase - Professional Use of Dishwash products; Dishwash product; Semi-Automatic process (AISE-P203); Preparatory Phase - Professional Use of Dishwash products; Rinse aid; Semi-Automatic process (AISE-P204); Preparatory Phase - Professional Use of	PROC 8a

General surface cleaning products; Periodic cleaning by dipping (AISE-P309); Preparatory Phase - Professional Use of Medical Devices; Medical devices ; Semi-automatic process (AISE-P1101); Preparatory Phase - Professional Use of Medical Devices; Medical devices ; Dipping process (AISE-P1102); Preparatory Phase	
CS 7: Professional Use of Façade/surface Cleaning Products; Façade/surface cleaner; High pressure process (AISE-P901); Preparatory Phase - Professional Use of Façade/surface Cleaning Products; Façade/surface cleaner; Medium pressure process (AISE-P902); Preparatory Phase	PROC 8a
CS 8: Professional Use of Dishwash products; Dishwash product; Manual process (AISE-P201); Preparatory Phase	PROC 8a
CS 9: Professional Use of Floor care products; Floor cleaner; Manual process (AISE-P403); Preparatory Phase - Professional Use of General surface cleaning products; General purpose cleaner; Manual process (AISE-P301); Preparatory Phase - Professional Use of General surface cleaning products; General purpose cleaner; Spray and wipe; manual process (AISE-P302); Preparatory Phase - Professional Use of General surface cleaning products; Kitchen cleaner; Manual process (AISE-P303); Preparatory Phase - Professional Use of General surface cleaning products; Kitchen cleaner; Spray and wipe manual process (AISE-P304); Preparatory Phase - Professional Use of General surface cleaning products; Sanitary cleaner; Manual process (AISE-P305); Preparatory Phase - Professional Use of General surface cleaning products; Sanitary cleaner; Spray and wipe manual process (AISE-P306); Preparatory Phase - Professional Use of General surface cleaning products; Glass cleaner; Manual process (AISE-P312); Preparatory Phase - Professional Use of Floor care products; Floor cleaner; Semi-Automatic process (AISE-P401); Preparatory Phase - Professional Use of Floor care products; Floor cleaner; Spray and wipe manual process (AISE-P402); Preparatory Phase - Professional Use of Floor care products; Carpet cleaner; Manual process (AISE-P409); Preparatory Phase - Professional Use of Floor care products; Carpet cleaner; Semi-Automatic process (AISE-P410); Preparatory Phase - Professional Use of pharmacos products; Animal care; Manual process (AISE-P808); Preparatory Phase - Professional Use of Medical Devices; Medical devices ; Spray and wipe process (AISE-P1104); Preparatory Phase	PROC 8a
CS 10: Professional Use of Vehicle cleaning Products; Car wash product; Semi-Automatic process (AISE-P701); Preparatory Phase - Professional Use of Vehicle cleaning Products; Car wash product; Spray - Manual process (AISE-P702); Preparatory Phase - Professional Use of Vehicle cleaning Products; Dewaxing product; Semi-Automatic process (AISE-P704); Preparatory Phase - Professional Use of Laundry products ; Laundry detergent; Manual process (AISE-P103); Preparatory Phase - Professional Use of General surface cleaning products; Descaling agent; Spray and rinse manual process (AISE-P308); Preparatory	PROC 8a

Phase - Professional Use of General surface cleaning products; Surface disinfectant; Manual process (AISE-P314); Preparatory Phase - Professional Use of General surface cleaning products; Surface disinfectant; Spray and rinse manual process (AISE-P315); Preparatory Phase - Professional Use of Floor care products; Floor stripper; Manual process (AISE-P404); Preparatory Phase - Professional Use of Floor care products; Floor stripper; Semi-Automatic process (AISE-P405); Preparatory Phase - Professional Use of Medical Devices; Medical devices ; Manual process (AISE-P1103); Preparatory Phase		
CS 11: Professional Use of Vehicle cleaning Products; Car wash product; Spray and Wipe manual process (AISE-P703); Preparatory Phase - Professional Use of Vehicle cleaning Products; Boat cleaner; Manual process (AISE-P705); Preparatory Phase - Professional Use of Vehicle cleaning Products; Boat cleaner; Spray and wipe manual process (AISE-P706); Preparatory Phase	PROC 8a	
CS 12: Professional Use of Dishwash products; Dishwash and rinse aid product; Automatic process (AISE-P202); Preparatory Phase	PROC 8b	
CS 13: Professional Use of General surface cleaning products; Oven/Grill Cleaner; Manual process (AISE-P310); Use Phase	PROC 10	
CS 14: Professional Use of Laundry products ; Laundry detergent; Manual process (AISE-P103); Use Phase - Professional Use of Dishwash products; Dishwash product; Manual process (AISE-P201); Use Phase - Professional Use of General surface cleaning products; Wet wipes; Manual process (AISE-P317); Use Phase - Professional Use of Floor care products; Carpet pre-spotters; Brush manual process (AISE-P411); Use Phase	PROC 10	
CS 15: Professional Use of General surface cleaning products; Descaling agent; Manual process (AISE-P307); Use Phase	PROC 10	
CS 16: Professional Use of Floor care products; Floor cleaner; Manual process (AISE-P403); Use Phase - Professional Use of Laundry products ; Prespotter/Stain remover; Manual process (AISE-P113); Use Phase - Professional Use of General surface cleaning products; General purpose cleaner; Manual process (AISE-P301); Use Phase - Professional Use of General surface cleaning products; General purpose cleaner; Wipe; manual process (AISE-P302); Use Phase - Professional Use of General surface cleaning products; Kitchen cleaner; Manual process (AISE-P303); Use Phase - Professional Use of General surface cleaning products; Kitchen cleaner; Wipe manual process (AISE-P304); Use Phase - Professional Use of General surface cleaning products; Sanitary cleaner; Manual process (AISE-P305); Use Phase	PROC 10	
CS 17: Professional Use of General surface cleaning products; Sanitary cleaner; Wipe manual process (AISE-P306); Use Phase - Professional Use of General	PROC 10	



surface cleaning products; Glass cleaner; Manual process (AISE-P312); Use Phase - Professional Use of General surface cleaning products; Glass cleaner ; Wipe manual process (AISE-P313); Use Phase - Professional Use of General surface cleaning products; Surface disinfectant; Manual process (AISE-P314); Use Phase - Professional Use of General surface cleaning products; Surface disinfectant; Rinse manual process (AISE-P315); Use Phase - Professional Use of General surface cleaning products; Metal cleaning agent (including silver and copper polishes); Manual process (AISE-P316); Use Phase - Professional Use of Floor care products; Floor cleaner; Semi-Automatic process (AISE-P401); Use Phase - Professional Use of Floor care products; Floor cleaner; Wipe manual process (AISE-P402); Use Phase - Professional Use of Floor care products; Floor stripper; Semi-Automatic process (AISE-P405); Use Phase - Professional Use of Floor care products; Carpet cleaner; Manual process (AISE-P409); Use Phase - Professional Use of Floor care products; Carpet cleaner; Semi-Automatic process (AISE-P410); Use Phase - Professional Use of pharmacos products; Animal care; Manual process (AISE-P808); Use Phase - Professional Use of Medical Devices; Medical devices ; Manual process (AISE-P1103); Use Phase - Professional Use of Medical Devices; Medical devices ; Wipe process (AISE-P1104); Use Phase

CS 18: Professional Use of General surface cleaning products; Descaling agent; Rinse manual process (AISE-P308); Use Phase - Professional Use of General surface cleaning products; Oven/Grill Cleaner; Wipe manual process (AISE-P311); Use Phase - Professional Use of Floor care products; Floor stripper; Manual process (AISE-P404); Use Phase PROC 10

CS 19: Professional Use of Vehicle cleaning Products; Car wash product; Wipe manual process (AISE-P703); Use Phase - Professional Use of Vehicle cleaning Products; Boat cleaner; Manual process (AISE-P705); Use Phase - Professional Use of Vehicle cleaning Products; Boat cleaner; Wipe manual process (AISE-P706); Use Phase PROC 10

CS 20: Professional Use of Façade/surface Cleaning Products; Façade/surface cleaner; Medium pressure process (AISE-P902); Use Phase PROC 10

CS 21: Professional Use of Vehicle cleaning Products; Car wash product; Spray - Manual process (AISE-P702); Use Phase - Professional Use of Laundry products ; Prespotter/Stain remover; Manual process (AISE-P113); Use Phase - Professional Use of General surface cleaning products; General purpose cleaner; Spray manual process (AISE-P302); Use Phase - Professional Use of General surface cleaning products; Kitchen cleaner; Spray manual process (AISE-P304); Use Phase - Professional Use of General surface cleaning products; Sanitary cleaner; Spray manual process (AISE-P306); Use Phase - Professional Use of General surface cleaning products; Glass cleaner; Spray manual process (AISE-P313); Use Phase - Professional Use of General surface cleaning products; PROC 11

Surface disinfectant; Spray manual process (AISE-P315); Use Phase - Professional Use of Floor care products; Floor cleaner; Spray manual process (AISE-P402); Use Phase - Professional Use of Floor care products; Carpet pre-spotters; Spray manual process (AISE-P411); Use Phase - Professional Use of Medical Devices; Medical devices ; Spray process (AISE-P1104); Use Phase	
CS 22: Professional Use of General surface cleaning products; Descaling agent; Spray manual process (AISE-P308); Use Phase - Professional Use of General surface cleaning products; Oven/Grill Cleaner; Spray manual process (AISE-P311); Use Phase	PROC 11
CS 23: Professional Use of Vehicle cleaning Products; Car wash product; Spray manual process (AISE-P703); Use Phase - Professional Use of Vehicle cleaning Products; Boat cleaner; Spray manual process (AISE-P706); Use Phase	PROC 11
CS 24: Professional Use of Façade/surface Cleaning Products; Façade/surface cleaner; Medium pressure process (AISE-P902); Use Phase	PROC 11
CS 25: Professional Use of Façade/surface Cleaning Products; Façade/surface cleaner; High pressure process (AISE-P901); Use Phase	PROC 11
CS 26: Professional Use of Maintenance Products; Drain unblocker; Manual process (AISE-P606); Use Phase - Professional Use of Maintenance Products; Drain cleaner; Manual process (AISE-P607); Use Phase	PROC 13
CS 27: Professional Use of General surface cleaning products; Periodic cleaning by dipping (AISE-P309); Use Phase - Professional Use of Medical Devices; Medical devices ; Dipping process (AISE-P1102); Use Phase	PROC 13

## 5.2. Conditions of use affecting exposure

### 5.2.1. Control of environmental exposure: GES4 - Professional end-use of washing and cleaning products (indoor use) (ERC 8d)

Conditions and measures related to treatment of waste (including article waste)
Dispose of waste or used sacks/containers according to local regulations.

### 5.2.2. Control of worker exposure: Professional Use of Laundry products ; Laundry detergent; Semi automatic process (AISE-P102); Use Phase - Professional Use of Laundry products ; Conditioner (softener/starch); Semi automatic process (AISE-P105); Use Phase - Professional Use of Laundry products ; Laundry aid (gasing); Semi automatic process (AISE-P108); Use Phase - Professional Use of Laundry products ; Laundry aid (non-gasing); Semi automatic process (AISE-P111); Use Phase - Professional Use of Dishwash products; Dishwash product; Semi-Automatic process (AISE-P203); Use Phase - Professional Use of Dishwash products; Rinse aid; Semi-

**Automatic process (AISE-P204); Use Phase - Professional Use of Medical Devices; Medical devices ; Semi-automatic process (AISE-P1101); Use Phase (PROC 1)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
<i>Covers daily exposures up to 8 hours.</i>
<b>Technical and organisational conditions and measures</b>
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
Use in closed process, no likelihood of exposure
<i>Basic (professional) exposure controls assumed.</i>
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**5.2.3. Control of worker exposure: Professional Use of Dishwash products; Dishwash and rinse aid product; Automatic process (AISE-P202); Use Phase (PROC 2)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 15 minutes.
<b>Technical and organisational conditions and measures</b>
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
Use in closed, continuous process with occasional controlled exposure
<i>Basic (professional) exposure controls assumed.</i>
<b>Other conditions affecting workers exposure</b>
Indoor use

Assumes process temperature up to 40.0 °C

#### 5.2.4. Control of worker exposure: Professional Use of Laundry products ; Laundry aid (non-gasing); Manual process (AISE-P112); Use Phase (PROC 4)

Product (article) characteristics
Limit the substance content in the product to 1 % .
Amount used (or contained in articles), frequency and duration of use/exposure
Avoid carrying out activities involving exposure for more than 15 minutes.
Technical and organisational conditions and measures
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
Use in semi-closed process with opportunity for exposure
<i>Basic (professional) exposure controls assumed.</i>
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C

#### 5.2.5. Control of worker exposure: Professional Use of Vehicle cleaning Products; Car wash product; Semi-Automatic process (AISE-P701); Use Phase - Professional Use of Vehicle cleaning Products; Dewaxing product; Semi-Automatic process (AISE-P704); Use Phase (PROC 4)

Product (article) characteristics
Limit the substance content in the product to 1 % .
Amount used (or contained in articles), frequency and duration of use/exposure
<i>Covers daily exposures up to 8 hours.</i>
Technical and organisational conditions and measures
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .

Use in semi-closed process with opportunity for exposure
<i>Basic (professional) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**5.2.6. Control of worker exposure: Professional Use of Laundry products ; Laundry detergent; Semi automatic process (AISE-P102); Preparatory Phase - Professional Use of Laundry products ; Conditioner (softener/starch); Semi automatic process (AISE-P105); Preparatory Phase - Professional Use of Laundry products ; Laundry aid (gasing); Semi automatic process (AISE-P108); Preparatory Phase - Professional Use of Laundry products ; Laundry aid (non-gasing); Semi automatic process (AISE-P111); Preparatory Phase - Professional Use of Laundry products ; Laundry aid (non-gasing); Manual process (AISE-P112); Preparatory Phase - Professional Use of Dishwash products; Dishwash product; Semi-Automatic process (AISE-P203); Preparatory Phase - Professional Use of Dishwash products; Rinse aid; Semi-Automatic process (AISE-P204); Preparatory Phase - Professional Use of General surface cleaning products; Periodic cleaning by dipping (AISE-P309); Preparatory Phase - Professional Use of Medical Devices; Medical devices ; Semi-automatic process (AISE-P1101); Preparatory Phase - Professional Use of Medical Devices; Medical devices ; Dipping process (AISE-P1102); Preparatory Phase (PROC 8a)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 15 minutes.
<b>Technical and organisational conditions and measures</b>
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
<i>Basic (professional) exposure controls assumed.</i>

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C

**5.2.7. Control of worker exposure: Professional Use of Façade/surface Cleaning Products; Façade/surface cleaner; High pressure process (AISE-P901); Preparatory Phase - Professional Use of Façade/surface Cleaning Products; Façade/surface cleaner; Medium pressure process (AISE-P902); Preparatory Phase (PROC 8a)**

Product (article) characteristics
Limit the substance content in the product to 1 % .
Amount used (or contained in articles), frequency and duration of use/exposure
Avoid carrying out activities involving exposure for more than 15 minutes.
Technical and organisational conditions and measures
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
<i>Basic (professional) exposure controls assumed.</i>
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C

**5.2.8. Control of worker exposure: Professional Use of Dishwash products; Dishwash product; Manual process (AISE-P201); Preparatory Phase (PROC 8a)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 15 minutes.
<b>Technical and organisational conditions and measures</b>
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
<i>Basic (professional) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**5.2.9. Control of worker exposure: Professional Use of Floor care products; Floor cleaner; Manual process (AISE-P403); Preparatory Phase - Professional Use of General surface cleaning products; General purpose cleaner; Manual process (AISE-P301); Preparatory Phase - Professional Use of General surface cleaning products; General purpose cleaner; Spray and wipe; manual process (AISE-P302); Preparatory Phase - Professional Use of General surface cleaning products; Kitchen cleaner; Manual process (AISE-P303); Preparatory Phase - Professional Use of General surface cleaning products; Kitchen cleaner; Spray and wipe manual process (AISE-P304); Preparatory Phase - Professional Use of General surface cleaning products; Sanitary cleaner; Manual process (AISE-P305); Preparatory Phase - Professional Use of General surface cleaning products; Sanitary cleaner; Spray and wipe manual process (AISE-P306); Preparatory Phase - Professional Use of General surface cleaning products; Glass cleaner; Manual process (AISE-P312); Preparatory Phase - Professional Use of Floor care products; Floor cleaner; Semi-Automatic process (AISE-P401); Preparatory Phase - Professional Use of Floor care products; Floor cleaner; Spray and wipe manual process (AISE-P402); Preparatory Phase - Professional Use of Floor care products; Carpet cleaner; Manual process (AISE-P409); Preparatory Phase - Professional Use of**

**Floor care products; Carpet cleaner; Semi-Automatic process (AISE-P410); Preparatory Phase - Professional Use of pharmacos products; Animal care; Manual process (AISE-P808); Preparatory Phase - Professional Use of Medical Devices; Medical devices ; Spray and wipe process (AISE-P1104); Preparatory Phase (PROC 8a)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
<i>Basic (professional) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**5.2.10. Control of worker exposure: Professional Use of Vehicle cleaning Products; Car wash product; Semi-Automatic process (AISE-P701); Preparatory Phase - Professional Use of Vehicle cleaning Products; Car wash product; Spray - Manual process (AISE-P702); Preparatory Phase - Professional Use of Vehicle cleaning Products; Dewaxing product; Semi-Automatic process (AISE-P704); Preparatory Phase - Professional Use of Laundry products ; Laundry detergent; Manual process (AISE-P103); Preparatory Phase - Professional Use of General surface cleaning products; Descaling agent; Spray and rinse manual process (AISE-P308); Preparatory Phase - Professional Use of General surface cleaning products; Surface disinfectant; Manual process (AISE-P314); Preparatory Phase - Professional Use of General surface cleaning products; Surface disinfectant; Spray and rinse manual process (AISE-P315); Preparatory Phase - Professional Use of Floor care products; Floor stripper; Manual process (AISE-P404); Preparatory Phase - Professional Use of Floor care products; Floor stripper; Semi-Automatic process (AISE-P405); Preparatory Phase - Professional Use of Medical Devices; Medical devices ; Manual process (AISE-P1103); Preparatory Phase (PROC**



8a)

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
<i>Basic (professional) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**5.2.11. Control of worker exposure: Professional Use of Vehicle cleaning Products; Car wash product; Spray and Wipe manual process (AISE-P703); Preparatory Phase - Professional Use of Vehicle cleaning Products; Boat cleaner; Manual process (AISE-P705); Preparatory Phase - Professional Use of Vehicle cleaning Products; Boat cleaner; Spray and wipe manual process (AISE-P706); Preparatory Phase (PROC 8a)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
<i>Basic (professional) exposure controls assumed.</i>

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Ensure operation is undertaken outdoors.
Assumes process temperature up to 40.0 °C

#### 5.2.12. Control of worker exposure: Professional Use of Dishwash products; Dishwash and rinse aid product; Automatic process (AISE-P202); Preparatory Phase (PROC 8b)

Product (article) characteristics
Limit the substance content in the product to 1 % .
Amount used (or contained in articles), frequency and duration of use/exposure
Avoid carrying out activities involving exposure for more than 15 minutes.
Technical and organisational conditions and measures
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
Use in semi-closed process with opportunity for exposure
<i>Basic (professional) exposure controls assumed.</i>
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C

#### 5.2.13. Control of worker exposure: Professional Use of General surface cleaning products; Oven/Grill Cleaner; Manual process (AISE-P310); Use Phase (PROC 10)

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
<i>Basic (professional) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**5.2.14. Control of worker exposure: Professional Use of Laundry products ; Laundry detergent; Manual process (AISE-P103); Use Phase - Professional Use of Dishwash products; Dishwash product; Manual process (AISE-P201); Use Phase - Professional Use of General surface cleaning products; Wet wipes; Manual process (AISE-P317); Use Phase - Professional Use of Floor care products; Carpet pre-spotters; Brush manual process (AISE-P411); Use Phase (PROC 10)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

<i>Basic (professional) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

#### **5.2.15. Control of worker exposure: Professional Use of General surface cleaning products; Descaling agent; Manual process (AISE-P307); Use Phase (PROC 10)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
<i>Basic (professional) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**5.2.16. Control of worker exposure: Professional Use of Floor care products; Floor cleaner; Manual process (AISE-P403); Use Phase - Professional Use of Laundry products ; Prespotter/Stain remover; Manual process (AISE-P113); Use Phase - Professional Use of General surface cleaning products; General purpose cleaner; Manual process (AISE-P301); Use Phase - Professional Use of General surface cleaning products; General purpose cleaner; Wipe; manual process (AISE-P302); Use Phase - Professional Use of General surface cleaning products; Kitchen cleaner; Manual process (AISE-P303); Use Phase - Professional Use of General surface cleaning products; Kitchen cleaner; Wipe manual process (AISE-P304); Use Phase - Professional Use of General surface cleaning products; Sanitary cleaner; Manual process (AISE-P305); Use Phase (PROC 10)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 4 hours.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
<i>Basic (professional) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**5.2.17. Control of worker exposure: Professional Use of General surface cleaning products; Sanitary cleaner; Wipe manual process (AISE-P306); Use Phase - Professional Use of General surface cleaning products; Glass cleaner; Manual process (AISE-P312); Use Phase - Professional Use of General surface cleaning products; Glass cleaner ; Wipe manual process (AISE-P313); Use Phase - Professional Use of General surface cleaning products; Surface disinfectant; Manual process (AISE-P314); Use Phase - Professional Use of General surface cleaning products; Surface disinfectant; Rinse manual process (AISE-P315); Use Phase - Professional Use of General surface cleaning products; Metal**

cleaning agent (including silver and copper polishes); Manual process (AISE-P316); Use Phase - Professional Use of Floor care products; Floor cleaner; Semi-Automatic process (AISE-P401); Use Phase - Professional Use of Floor care products; Floor cleaner; Wipe manual process (AISE-P402); Use Phase - Professional Use of Floor care products; Floor stripper; Semi-Automatic process (AISE-P405); Use Phase - Professional Use of Floor care products; Carpet cleaner; Manual process (AISE-P409); Use Phase - Professional Use of Floor care products; Carpet cleaner; Semi-Automatic process (AISE-P410); Use Phase - Professional Use of pharmacos products; Animal care; Manual process (AISE-P808); Use Phase - Professional Use of Medical Devices; Medical devices ; Manual process (AISE-P1103); Use Phase - Professional Use of Medical Devices; Medical devices ; Wipe process (AISE-P1104); Use Phase (PROC 10)

Product (article) characteristics
Limit the substance content in the product to 1 % .
Amount used (or contained in articles), frequency and duration of use/exposure
Avoid carrying out activities involving exposure for more than 4 hours.
Technical and organisational conditions and measures
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
<i>Basic (professional) exposure controls assumed.</i>
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C

**5.2.18. Control of worker exposure: Professional Use of General surface cleaning products; Descaling agent; Rinse manual process (AISE-P308); Use Phase - Professional Use of General surface cleaning products; Oven/Grill Cleaner; Wipe manual process (AISE-P311); Use Phase - Professional Use of Floor care products; Floor stripper; Manual process (AISE-P404); Use Phase (PROC 10)**

Product (article) characteristics
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Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 4 hours.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
<i>Basic (professional) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**5.2.19. Control of worker exposure: Professional Use of Vehicle cleaning Products; Car wash product; Wipe manual process (AISE-P703); Use Phase - Professional Use of Vehicle cleaning Products; Boat cleaner; Manual process (AISE-P705); Use Phase - Professional Use of Vehicle cleaning Products; Boat cleaner; Wipe manual process (AISE-P706); Use Phase (PROC 10)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 4 hours.
<b>Technical and organisational conditions and measures</b>
<i>Basic (professional) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>

Eucalyptus globulus, ext.,

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Ensure operation is undertaken outdoors.
Assumes process temperature up to 40.0 °C

**5.2.20. Control of worker exposure: Professional Use of Façade/surface Cleaning Products; Façade/surface cleaner; Medium pressure process (AISE-P902); Use Phase (PROC 10)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 4 hours.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
<i>Basic (professional) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**5.2.21. Control of worker exposure: Professional Use of Vehicle cleaning Products; Car wash product; Spray - Manual process (AISE-P702); Use Phase - Professional Use of**



**Laundry products ; Prespotter/Stain remover; Manual process (AISE-P113); Use Phase - Professional Use of General surface cleaning products; General purpose cleaner; Spray manual process (AISE-P302); Use Phase - Professional Use of General surface cleaning products; Kitchen cleaner; Spray manual process (AISE-P304); Use Phase - Professional Use of General surface cleaning products; Sanitary cleaner; Spray manual process (AISE-P306); Use Phase - Professional Use of General surface cleaning products; Glass cleaner; Spray manual process (AISE-P313); Use Phase - Professional Use of General surface cleaning products; Surface disinfectant; Spray manual process (AISE-P315); Use Phase - Professional Use of Floor care products; Floor cleaner; Spray manual process (AISE-P402); Use Phase - Professional Use of Floor care products; Carpet pre-spotters; Spray manual process (AISE-P411); Use Phase - Professional Use of Medical Devices; Medical devices ; Spray process (AISE-P1104); Use Phase (PROC 11)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
Local exhaust ventilation - efficiency of at least 80.0 %
<i>Basic (professional) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**5.2.22. Control of worker exposure: Professional Use of General surface cleaning products; Descaling agent; Spray manual process (AISE-P308); Use Phase - Professional Use of General surface cleaning products; Oven/Grill Cleaner; Spray manual process (AISE-P311); Use Phase (PROC 11)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Local exhaust ventilation - efficiency of at least 80.0 %
<i>Basic (professional) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**5.2.23. Control of worker exposure: Professional Use of Vehicle cleaning Products; Car wash product; Spray manual process (AISE-P703); Use Phase - Professional Use of Vehicle cleaning Products; Boat cleaner; Spray manual process (AISE-P706); Use Phase (PROC 11)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Local exhaust ventilation - efficiency of at least 80.0 %
<i>Basic (professional) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

#### 5.2.24. Control of worker exposure: Professional Use of Façade/surface Cleaning Products; Façade/surface cleaner; Medium pressure process (AISE-P902); Use Phase (PROC 11)

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
Local exhaust ventilation - efficiency of at least 80.0 %
<i>Basic (professional) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.

<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**5.2.25. Control of worker exposure: Professional Use of Façade/surface Cleaning Products; Façade/surface cleaner; High pressure process (AISE-P901); Use Phase (PROC 11)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 4 hours.
<b>Technical and organisational conditions and measures</b>
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Local exhaust ventilation - efficiency of at least 80.0 %
<i>Basic (professional) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**5.2.26. Control of worker exposure: Professional Use of Maintenance Products; Drain unblocker; Manual process (AISE-P606); Use Phase - Professional Use of Maintenance Products; Drain cleaner; Manual process (AISE-P607); Use Phase (PROC 13)**

<b>Product (article) characteristics</b>
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Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 15 minutes.
<b>Technical and organisational conditions and measures</b>
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
<i>Basic (professional) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**5.2.27. Control of worker exposure: Professional Use of General surface cleaning products; Periodic cleaning by dipping (AISE-P309); Use Phase - Professional Use of Medical Devices; Medical devices ; Dipping process (AISE-P1102); Use Phase (PROC 13)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
Local exhaust ventilation - efficiency of at least 80.0 %
<i>Basic (professional) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.

Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C

### 5.3. Exposure estimation and reference to its source

#### 5.3.1. Environmental release and exposure: GES4 - Professional end-use of washing and cleaning products (indoor use) (ERC 8d)

Release route	Release rate	Release estimation method
Water	0.02 kg/day	ERC based
Air	0.02 kg/day	ERC based
Soil	0.004 kg/day	ERC based

Protection target	Exposure estimate (based on: EUSES 2.1.2)	RCR
Freshwater	2.247E-4 mg/L	0.11
Sediment (freshwater)	0.007 mg/kg dw	0.01
Marine water	2.106E-5 mg/L	0.103
Sediment (marine water)	6.241E-4 mg/kg dw	< 0.01
Predator (freshwater)	0.142 mg/kg ww	< 0.01
Predator (marine water)	0.013 mg/kg ww	< 0.01
Top predator (marine water)	0.009 mg/kg ww	< 0.01
Sewage treatment plant	0.001 mg/L	< 0.01
Agricultural soil	6.878E-4 mg/kg dw	< 0.01
Predator (terrestrial)	1.886E-4 mg/kg ww	< 0.01
Man via environment - Inhalation	7.491E-6 mg/m <sup>3</sup>	< 0.01
Man via environment - Oral	3.233E-4 mg/kg bw/day	< 0.01

**5.3.2. Worker exposure: Professional Use of Laundry products ; Laundry detergent; Semi automatic process (AISE-P102); Use Phase - Professional Use of Laundry products ; Conditioner (softener/starch); Semi automatic process (AISE-P105); Use Phase - Professional Use of Laundry products ; Laundry aid (gasing); Semi automatic process (AISE-P108); Use Phase - Professional Use of Laundry products ; Laundry aid (non-gasing); Semi automatic process (AISE-P111); Use Phase - Professional Use of Dishwash products; Dishwash product; Semi-Automatic process (AISE-P203); Use Phase - Professional Use of Dishwash products; Rinse aid; Semi-Automatic process (AISE-P204); Use Phase - Professional Use of Medical Devices; Medical devices ; Semi-automatic process (AISE-P1101); Use Phase (PROC 1)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.006 mg/m <sup>3</sup> (TRA Workers 3.0)	< 0.01
Dermal, systemic, long-term	0.003 mg/kg bw/day (TRA Workers 3.0)	< 0.01
Combined routes, systemic, long-term		< 0.01

**5.3.3. Worker exposure: Professional Use of Dishwash products; Dishwash and rinse aid product; Automatic process (AISE-P202); Use Phase (PROC 2)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.321 mg/m <sup>3</sup> (TRA Workers 3.0)	0.091
Dermal, systemic, long-term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.137
Combined routes, systemic, long-term		0.228

**5.3.4. Worker exposure: Professional Use of Laundry products ; Laundry aid (non-gasing); Manual process (AISE-P112); Use Phase (PROC 4)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.643 mg/m <sup>3</sup> (TRA Workers 3.0)	0.183
Dermal, systemic, long-term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.137
Combined routes, systemic, long-term		0.32

**5.3.5. Worker exposure: Professional Use of Vehicle cleaning Products; Car wash product; Semi-Automatic process (AISE-P701); Use Phase - Professional Use of Vehicle cleaning Products; Dewaxing product; Semi-Automatic process (AISE-P704); Use Phase (PROC 4)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.45 mg/m <sup>3</sup> (TRA Workers 3.0)	0.128
Dermal, systemic, long-term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.069
Combined routes, systemic, long-term		0.196

**5.3.6. Worker exposure: Professional Use of Laundry products ; Laundry detergent; Semi automatic process (AISE-P102); Preparatory Phase - Professional Use of Laundry products ; Conditioner (softener/starch); Semi automatic process (AISE-P105); Preparatory Phase - Professional Use of Laundry products ; Laundry aid (gasing); Semi automatic process (AISE-P108); Preparatory Phase - Professional Use of Laundry products ; Laundry aid (non-gasing); Semi automatic process (AISE-P111); Preparatory Phase - Professional Use of Laundry products ; Laundry aid (non-gasing); Manual process (AISE-P112); Preparatory Phase - Professional Use of Dishwash products; Dishwash product; Semi-Automatic process (AISE-P203); Preparatory Phase - Professional Use of Dishwash products; Rinse aid; Semi-Automatic process (AISE-P204); Preparatory Phase - Professional Use of General surface cleaning products; Periodic cleaning by dipping (AISE-P309); Preparatory Phase - Professional Use of Medical Devices; Medical devices ; Semi-automatic process (AISE-P1101); Preparatory Phase - Professional Use of Medical Devices; Medical devices ; Dipping process (AISE-P1102); Preparatory Phase (PROC 8a)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.161 mg/m <sup>3</sup> (TRA Workers 3.0)	0.046
Dermal, systemic, long-term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.137
Combined routes, systemic, long-term		0.183

**5.3.7. Worker exposure: Professional Use of Façade/surface Cleaning Products; Façade/surface cleaner; High pressure process (AISE-P901); Preparatory Phase - Professional Use of Façade/surface Cleaning Products; Façade/surface cleaner; Medium pressure process (AISE-P902); Preparatory Phase (PROC 8a)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.161 mg/m <sup>3</sup> (TRA Workers 3.0)	0.046
Dermal, systemic, long-term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.274
Combined routes, systemic, long-term		0.32

**5.3.8. Worker exposure: Professional Use of Dishwash products; Dishwash product; Manual process (AISE-P201); Preparatory Phase (PROC 8a)**



Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.161 mg/m <sup>3</sup> (TRA Workers 3.0)	0.046
Dermal, systemic, long-term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.137
Combined routes, systemic, long-term		0.183

**5.3.9. Worker exposure: Professional Use of Floor care products; Floor cleaner; Manual process (AISE-P403); Preparatory Phase - Professional Use of General surface cleaning products; General purpose cleaner; Manual process (AISE-P301); Preparatory Phase - Professional Use of General surface cleaning products; General purpose cleaner; Spray and wipe; manual process (AISE-P302); Preparatory Phase - Professional Use of General surface cleaning products; Kitchen cleaner; Manual process (AISE-P303); Preparatory Phase - Professional Use of General surface cleaning products; Kitchen cleaner; Spray and wipe manual process (AISE-P304); Preparatory Phase - Professional Use of General surface cleaning products; Sanitary cleaner; Manual process (AISE-P305); Preparatory Phase - Professional Use of General surface cleaning products; Sanitary cleaner; Spray and wipe manual process (AISE-P306); Preparatory Phase - Professional Use of General surface cleaning products; Glass cleaner; Manual process (AISE-P312); Preparatory Phase - Professional Use of Floor care products; Floor cleaner; Semi-Automatic process (AISE-P401); Preparatory Phase - Professional Use of Floor care products; Floor cleaner; Spray and wipe manual process (AISE-P402); Preparatory Phase - Professional Use of Floor care products; Carpet cleaner; Manual process (AISE-P409); Preparatory Phase - Professional Use of Floor care products; Carpet cleaner; Semi-Automatic process (AISE-P410); Preparatory Phase - Professional Use of pharmacos products; Animal care; Manual process (AISE-P808); Preparatory Phase - Professional Use of Medical Devices; Medical devices ; Spray and wipe process (AISE-P1104); Preparatory Phase (PROC 8a)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.321 mg/m <sup>3</sup> (TRA Workers 3.0)	0.091
Dermal, systemic, long-term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.137
Combined routes, systemic, long-term		0.228

**5.3.10. Worker exposure: Professional Use of Vehicle cleaning Products; Car wash product; Semi-Automatic process (AISE-P701); Preparatory Phase - Professional Use of Vehicle cleaning Products; Car wash product; Spray - Manual process (AISE-P702); Preparatory Phase - Professional Use of Vehicle cleaning Products; Dewaxing product; Semi-Automatic process (AISE-P704); Preparatory Phase - Professional Use of Laundry products ; Laundry detergent; Manual process (AISE-P103); Preparatory Phase - Professional Use of General surface cleaning products; Descaling agent; Spray and rinse manual process (AISE-P308); Preparatory Phase - Professional Use of General surface cleaning products; Surface disinfectant; Manual process (AISE-P314); Preparatory Phase - Professional Use of General surface cleaning products; Surface disinfectant;**

**Spray and rinse manual process (AISE-P315); Preparatory Phase - Professional Use of Floor care products; Floor stripper; Manual process (AISE-P404); Preparatory Phase - Professional Use of Floor care products; Floor stripper; Semi-Automatic process (AISE-P405); Preparatory Phase - Professional Use of Medical Devices; Medical devices ; Manual process (AISE-P1103); Preparatory Phase (PROC 8a)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.321 mg/m <sup>3</sup> (TRA Workers 3.0)	0.091
Dermal, systemic, long-term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.137
Combined routes, systemic, long-term		0.228

**5.3.11. Worker exposure: Professional Use of Vehicle cleaning Products; Car wash product; Spray and Wipe manual process (AISE-P703); Preparatory Phase - Professional Use of Vehicle cleaning Products; Boat cleaner; Manual process (AISE-P705); Preparatory Phase - Professional Use of Vehicle cleaning Products; Boat cleaner; Spray and wipe manual process (AISE-P706); Preparatory Phase (PROC 8a)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.225 mg/m <sup>3</sup> (TRA Workers 3.0)	0.064
Dermal, systemic, long-term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.137
Combined routes, systemic, long-term		0.201

**5.3.12. Worker exposure: Professional Use of Dishwash products; Dishwash and rinse aid product; Automatic process (AISE-P202); Preparatory Phase (PROC 8b)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.643 mg/m <sup>3</sup> (TRA Workers 3.0)	0.183
Dermal, systemic, long-term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.274
Combined routes, systemic, long-term		0.457

**5.3.13. Worker exposure: Professional Use of General surface cleaning products; Oven/Grill Cleaner; Manual process (AISE-P310); Use Phase (PROC 10)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.225 mg/m <sup>3</sup> (TRA Workers 3.0)	0.064
Dermal, systemic, long-term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.274

Route of exposure and type of effects	Exposure estimate	RCR
Combined routes, systemic, long-term		0.338

**5.3.14. Worker exposure: Professional Use of Laundry products ; Laundry detergent; Manual process (AISE-P103); Use Phase - Professional Use of Dishwash products; Dishwash product; Manual process (AISE-P201); Use Phase - Professional Use of General surface cleaning products; Wet wipes; Manual process (AISE-P317); Use Phase - Professional Use of Floor care products; Carpet pre-sprayers; Brush manual process (AISE-P411); Use Phase (PROC 10)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.321 mg/m <sup>3</sup> (TRA Workers 3.0)	0.091
Dermal, systemic, long-term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.274
Combined routes, systemic, long-term		0.366

**5.3.15. Worker exposure: Professional Use of General surface cleaning products; Descaling agent; Manual process (AISE-P307); Use Phase (PROC 10)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.321 mg/m <sup>3</sup> (TRA Workers 3.0)	0.091
Dermal, systemic, long-term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.274
Combined routes, systemic, long-term		0.366

**5.3.16. Worker exposure: Professional Use of Floor care products; Floor cleaner; Manual process (AISE-P403); Use Phase - Professional Use of Laundry products ; Prespotter/Stain remover; Manual process (AISE-P113); Use Phase - Professional Use of General surface cleaning products; General purpose cleaner; Manual process (AISE-P301); Use Phase - Professional Use of General surface cleaning products; General purpose cleaner; Wipe; manual process (AISE-P302); Use Phase - Professional Use of General surface cleaning products; Kitchen cleaner; Manual process (AISE-P303); Use Phase - Professional Use of General surface cleaning products; Kitchen cleaner; Wipe manual process (AISE-P304); Use Phase - Professional Use of General surface cleaning products; Sanitary cleaner; Manual process (AISE-P305); Use Phase (PROC 10)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.675 mg/m <sup>3</sup> (TRA Workers 3.0)	0.192
Dermal, systemic, long-term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.274
Combined routes, systemic, long-term		0.466

**5.3.17. Worker exposure: Professional Use of General surface cleaning products; Sanitary cleaner; Wipe manual process (AISE-P306); Use Phase - Professional Use of General surface cleaning products; Glass cleaner; Manual process (AISE-P312); Use Phase - Professional Use of General surface cleaning products; Glass cleaner ; Wipe manual process (AISE-P313); Use Phase - Professional Use of General surface cleaning products; Surface disinfectant; Manual process (AISE-P314); Use Phase - Professional Use of General surface cleaning products; Surface disinfectant; Rinse manual process (AISE-P315); Use Phase - Professional Use of General surface cleaning products; Metal cleaning agent (including silver and copper polishes); Manual process (AISE-P316); Use Phase - Professional Use of Floor care products; Floor cleaner; Semi-Automatic process (AISE-P401); Use Phase - Professional Use of Floor care products; Floor cleaner; Wipe manual process (AISE-P402); Use Phase - Professional Use of Floor care products; Floor stripper; Semi-Automatic process (AISE-P405); Use Phase - Professional Use of Floor care products; Carpet cleaner; Manual process (AISE-P409); Use Phase - Professional Use of Floor care products; Carpet cleaner; Semi-Automatic process (AISE-P410); Use Phase - Professional Use of pharmacos products; Animal care; Manual process (AISE-P808); Use Phase - Professional Use of Medical Devices; Medical devices ; Manual process (AISE-P1103); Use Phase - Professional Use of Medical Devices; Medical devices ; Wipe process (AISE-P1104); Use Phase (PROC 10)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.675 mg/m <sup>3</sup> (TRA Workers 3.0)	0.192
Dermal, systemic, long-term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.274
Combined routes, systemic, long-term		0.466

**5.3.18. Worker exposure: Professional Use of General surface cleaning products; Descaling agent; Rinse manual process (AISE-P308); Use Phase - Professional Use of General surface cleaning products; Oven/Grill Cleaner; Wipe manual process (AISE-P311); Use Phase - Professional Use of Floor care products; Floor stripper; Manual process (AISE-P404); Use Phase (PROC 10)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.675 mg/m <sup>3</sup> (TRA Workers 3.0)	0.192
Dermal, systemic, long-term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.274
Combined routes, systemic, long-term		0.466

**5.3.19. Worker exposure: Professional Use of Vehicle cleaning Products; Car wash product; Wipe manual process (AISE-P703); Use Phase - Professional Use of Vehicle cleaning Products; Boat cleaner; Manual process (AISE-P705); Use Phase - Professional Use of Vehicle cleaning Products; Boat cleaner; Wipe manual process (AISE-P706); Use Phase (PROC 10)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.675 mg/m <sup>3</sup> (TRA Workers 3.0)	0.192
Dermal, systemic, long-term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.274
Combined routes, systemic, long-term		0.466

**5.3.20. Worker exposure: Professional Use of Façade/surface Cleaning Products; Façade/surface cleaner; Medium pressure process (AISE-P902); Use Phase (PROC 10)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.675 mg/m <sup>3</sup> (TRA Workers 3.0)	0.192
Dermal, systemic, long-term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.274
Combined routes, systemic, long-term		0.466

**5.3.21. Worker exposure: Professional Use of Vehicle cleaning Products; Car wash product; Spray - Manual process (AISE-P702); Use Phase - Professional Use of Laundry products ; Prespotter/Stain remover; Manual process (AISE-P113); Use Phase - Professional Use of General surface cleaning products; General purpose cleaner; Spray manual process (AISE-P302); Use Phase - Professional Use of General surface cleaning products; Kitchen cleaner; Spray manual process (AISE-P304); Use Phase - Professional Use of General surface cleaning products; Sanitary cleaner; Spray manual process (AISE-P306); Use Phase - Professional Use of General surface cleaning products; Glass cleaner; Spray manual process (AISE-P313); Use Phase - Professional Use of General surface cleaning products; Surface disinfectant; Spray manual process (AISE-P315); Use Phase - Professional Use of Floor care products; Floor cleaner; Spray manual process (AISE-P402); Use Phase - Professional Use of Floor care products; Carpet pre-spotters; Spray manual process (AISE-P411); Use Phase - Professional Use of Medical Devices; Medical devices ; Spray process (AISE-P1104); Use Phase (PROC 11)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.257 mg/m <sup>3</sup> (TRA Workers 3.0)	0.073
Dermal, systemic, long-term	0.214 mg/kg bw/day (TRA Workers 3.0)	0.214
Combined routes, systemic, long-term		0.287

**5.3.22. Worker exposure: Professional Use of General surface cleaning products; Descaling agent; Spray manual process (AISE-P308); Use Phase - Professional Use of General surface cleaning products; Oven/Grill Cleaner; Spray manual process (AISE-P311); Use Phase (PROC 11)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.18 mg/m <sup>3</sup> (TRA Workers 3.0)	0.051
Dermal, systemic, long-term	0.214 mg/kg bw/day (TRA Workers 3.0)	0.214
Combined routes, systemic, long-term		0.265

**5.3.23. Worker exposure: Professional Use of Vehicle cleaning Products; Car wash product; Spray manual process (AISE-P703); Use Phase - Professional Use of Vehicle cleaning Products; Boat cleaner; Spray manual process (AISE-P706); Use Phase (PROC 11)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.257 mg/m <sup>3</sup> (TRA Workers 3.0)	0.073
Dermal, systemic, long-term	0.214 mg/kg bw/day (TRA Workers 3.0)	0.214
Combined routes, systemic, long-term		0.287

**5.3.24. Worker exposure: Professional Use of Façade/surface Cleaning Products; Façade/surface cleaner; Medium pressure process (AISE-P902); Use Phase (PROC 11)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.257 mg/m <sup>3</sup> (TRA Workers 3.0)	0.073
Dermal, systemic, long-term	0.214 mg/kg bw/day (TRA Workers 3.0)	0.214
Combined routes, systemic, long-term		0.287

**5.3.25. Worker exposure: Professional Use of Façade/surface Cleaning Products; Façade/surface cleaner; High pressure process (AISE-P901); Use Phase (PROC 11)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.54 mg/m <sup>3</sup> (TRA Workers 3.0)	0.153
Dermal, systemic, long-term	0.214 mg/kg bw/day (TRA Workers 3.0)	0.214
Combined routes, systemic, long-term		0.368

**5.3.26. Worker exposure: Professional Use of Maintenance Products; Drain unblocker; Manual process (AISE-P606); Use Phase - Professional Use of Maintenance Products; Drain cleaner; Manual process (AISE-P607); Use Phase (PROC 13)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.643 mg/m <sup>3</sup> (TRA Workers 3.0)	0.183
Dermal, systemic, long-term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.274
Combined routes, systemic, long-term		0.457

**5.3.27. Worker exposure: Professional Use of General surface cleaning products; Periodic cleaning by dipping (AISE-P309); Use Phase - Professional Use of Medical Devices; Medical devices ; Dipping process (AISE-P1102); Use Phase (PROC 13)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.257 mg/m <sup>3</sup> (TRA Workers 3.0)	0.073
Dermal, systemic, long-term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.274
Combined routes, systemic, long-term		0.347

**5.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

<b>Scaling method</b>
The workers exposure and environmental emissions have been evaluated using TRA Workers 3.0 and EUSES 2.1.2, respectively.
<b>Health</b>
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures / Operational Conditions outlined in Section 2 are implemented.  Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
<b>Environment</b>
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

## 6. ES 6: Use by professional worker; GES5 - Professional end-use of polishes and wax blends

### 6.1. Title section

Environment	
CS 1: GES5 - Professional end-use of polishes and wax blends	ERC 8a
Worker	
CS 2: Professional Use of Maintenance Products; Leather care product; Semi-Automatic process (AISE-P605); Use Phase	PROC 2
CS 3: Professional Use of Maintenance Products; Leather care product; Semi-Automatic process (AISE-P605); Preparatory Phase	PROC 8b
CS 4: Professional Use of Maintenance Products; Wooden Furniture care product; Manual process (AISE-P601); Use Phase - Professional Use of Maintenance Products; Wooden Furniture care product; Wipe manual process (AISE-P602); Use Phase - Professional Use of Maintenance Products; Leather care product; Manual process (AISE-P603); Use Phase - Professional Use of Maintenance Products; Leather care product; Wipe manual process (AISE-P604); Use Phase - Professional Use of Maintenance Products; Stainless steel care; Wipe manual process (AISE-P609); Use Phase	PROC 10
CS 5: Professional Use of Floor care products; Polish / impregnating agent; Manual process (AISE-P406); Use Phase - Professional Use of Floor care products; Polish / impregnating agent; Semi-Automatic process (AISE-P407); Use Phase - Professional Use of Floor care products; Polish / impregnating agent; Wipe manual process (AISE-P408); Use Phase - Professional Use of Maintenance Products; Stainless steel care ; Manual process (AISE-P608); Use Phase	PROC 10
CS 6: Professional Use of Maintenance Products; Wooden Furniture care product; Spray manual process (AISE-P602); Use Phase - Professional Use of Maintenance Products; Leather care product; Spray manual process (AISE-P604); Use Phase - Professional Use of Maintenance Products; Stainless steel care; Spray manual process (AISE-P609); Use Phase	PROC 11
CS 7: Professional Use of Floor care products; Polish / impregnating agent; Spray manual process (AISE-P408); Use Phase	PROC 11

### 6.2. Conditions of use affecting exposure

#### 6.2.1. Control of environmental exposure: GES5 - Professional end-use of polishes and



**wax blends (ERC 8a)**

Conditions and measures related to treatment of waste (including article waste)
Dispose of waste or used sacks/containers according to local regulations.

**6.2.2. Control of worker exposure: Professional Use of Maintenance Products; Leather care product; Semi-Automatic process (AISE-P605); Use Phase (PROC 2)**

Product (article) characteristics
Limit the substance content in the product to 1 % .
Amount used (or contained in articles), frequency and duration of use/exposure
Avoid carrying out activities involving exposure for more than 1 hour.
Technical and organisational conditions and measures
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
Use in closed, continuous process with occasional controlled exposure
<i>Basic (professional) exposure controls assumed.</i>
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C

**6.2.3. Control of worker exposure: Professional Use of Maintenance Products; Leather care product; Semi-Automatic process (AISE-P605); Preparatory Phase (PROC 8b)**

Product (article) characteristics
Limit the substance content in the product to 1 % .
Amount used (or contained in articles), frequency and duration of use/exposure
Avoid carrying out activities involving exposure for more than 1 hour.
Technical and organisational conditions and measures
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
Use in semi-closed process with opportunity for exposure

<i>Basic (professional) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**6.2.4. Control of worker exposure: Professional Use of Maintenance Products; Wooden Furniture care product; Manual process (AISE-P601); Use Phase - Professional Use of Maintenance Products; Wooden Furniture care product; Wipe manual process (AISE-P602); Use Phase - Professional Use of Maintenance Products; Leather care product; Manual process (AISE-P603); Use Phase - Professional Use of Maintenance Products; Leather care product; Wipe manual process (AISE-P604); Use Phase - Professional Use of Maintenance Products; Stainless steel care; Wipe manual process (AISE-P609); Use Phase (PROC 10)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
<i>Basic (professional) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>

Indoor use
Assumes process temperature up to 40.0 °C

**6.2.5. Control of worker exposure: Professional Use of Floor care products; Polish / impregnating agent; Manual process (AISE-P406); Use Phase - Professional Use of Floor care products; Polish / impregnating agent; Semi-Automatic process (AISE-P407); Use Phase - Professional Use of Floor care products; Polish / impregnating agent; Wipe manual process (AISE-P408); Use Phase - Professional Use of Maintenance Products; Stainless steel care ; Manual process (AISE-P608); Use Phase (PROC 10)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 4 hours.
<b>Technical and organisational conditions and measures</b>
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
<i>Basic (professional) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 95.0 %; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**6.2.6. Control of worker exposure: Professional Use of Maintenance Products; Wooden Furniture care product; Spray manual process (AISE-P602); Use Phase - Professional Use of Maintenance Products; Leather care product; Spray manual process (AISE-P604); Use Phase - Professional Use of Maintenance Products; Stainless steel care; Spray manual process (AISE-P609); Use Phase (PROC 11)**

<b>Product (article) characteristics</b>
--

Eucalyptus globulus, ext.,

Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 15 minutes.
<b>Technical and organisational conditions and measures</b>
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
Local exhaust ventilation - efficiency of at least 80.0 %
<i>Basic (professional) exposure controls assumed.</i>
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40.0 °C

**6.2.7. Control of worker exposure: Professional Use of Floor care products; Polish / impregnating agent; Spray manual process (AISE-P408); Use Phase (PROC 11)**

<b>Product (article) characteristics</b>
Limit the substance content in the product to 1 % .
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Avoid carrying out activities involving exposure for more than 1 hour.
<b>Technical and organisational conditions and measures</b>
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
Local exhaust ventilation - efficiency of at least 80.0 %
<i>Basic (professional) exposure controls assumed.</i>

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; For further specification, refer to section 8 of the SDS.
Wear a respirator providing a minimum efficiency of 90.0 %; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C

### 6.3. Exposure estimation and reference to its source

#### 6.3.1. Environmental release and exposure: GES5 - Professional end-use of polishes and wax blends (ERC 8a)

Release route	Release rate	Release estimation method
Water	0.02 kg/day	ERC based
Air	0.02 kg/day	ERC based
Soil	0 kg/day	ERC based

Protection target	Exposure estimate (based on: EUSES 2.1.2)	RCR
Freshwater	2.247E-4 mg/L	0.11
Sediment (freshwater)	0.007 mg/kg dw	0.01
Marine water	2.106E-5 mg/L	0.103
Sediment (marine water)	6.241E-4 mg/kg dw	< 0.01
Predator (freshwater)	0.142 mg/kg ww	< 0.01
Predator (marine water)	0.013 mg/kg ww	< 0.01
Top predator (marine water)	0.009 mg/kg ww	< 0.01
Sewage treatment plant	0.001 mg/L	< 0.01

Protection target	Exposure estimate (based on: EUSES 2.1.2)	RCR
Agricultural soil	6.878E-4 mg/kg dw	< 0.01
Predator (terrestrial)	1.886E-4 mg/kg ww	< 0.01
Man via environment - Inhalation	7.491E-6 mg/m <sup>3</sup>	< 0.01
Man via environment - Oral	3.233E-4 mg/kg bw/day	< 0.01

**6.3.2. Worker exposure: Professional Use of Maintenance Products; Leather care product; Semi-Automatic process (AISE-P605); Use Phase (PROC 2)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.643 mg/m <sup>3</sup> (TRA Workers 3.0)	0.183
Dermal, systemic, long-term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.137
Combined routes, systemic, long-term		0.32

**6.3.3. Worker exposure: Professional Use of Maintenance Products; Leather care product; Semi-Automatic process (AISE-P605); Preparatory Phase (PROC 8b)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	1.285 mg/m <sup>3</sup> (TRA Workers 3.0)	0.365
Dermal, systemic, long-term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.137
Combined routes, systemic, long-term		0.502

**6.3.4. Worker exposure: Professional Use of Maintenance Products; Wooden Furniture care product; Manual process (AISE-P601); Use Phase - Professional Use of Maintenance Products; Wooden Furniture care product; Wipe manual process (AISE-P602); Use Phase - Professional Use of Maintenance Products; Leather care product; Manual process (AISE-P603); Use Phase - Professional Use of Maintenance Products; Leather care product; Wipe manual process (AISE-P604); Use Phase - Professional Use of Maintenance Products; Stainless steel care; Wipe manual process (AISE-P609); Use Phase (PROC 10)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.321 mg/m <sup>3</sup> (TRA Workers 3.0)	0.091

Route of exposure and type of effects	Exposure estimate	RCR
Dermal, systemic, long-term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.274
Combined routes, systemic, long-term		0.366

**6.3.5. Worker exposure: Professional Use of Floor care products; Polish / impregnating agent; Manual process (AISE-P406); Use Phase - Professional Use of Floor care products; Polish / impregnating agent; Semi-Automatic process (AISE-P407); Use Phase - Professional Use of Floor care products; Polish / impregnating agent; Wipe manual process (AISE-P408); Use Phase - Professional Use of Maintenance Products; Stainless steel care ; Manual process (AISE-P608); Use Phase (PROC 10)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.482 mg/m <sup>3</sup> (TRA Workers 3.0)	0.137
Dermal, systemic, long-term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.274
Combined routes, systemic, long-term		0.411

**6.3.6. Worker exposure: Professional Use of Maintenance Products; Wooden Furniture care product; Spray manual process (AISE-P602); Use Phase - Professional Use of Maintenance Products; Leather care product; Spray manual process (AISE-P604); Use Phase - Professional Use of Maintenance Products; Stainless steel care; Spray manual process (AISE-P609); Use Phase (PROC 11)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.128 mg/m <sup>3</sup> (TRA Workers 3.0)	0.037
Dermal, systemic, long-term	0.214 mg/kg bw/day (TRA Workers 3.0)	0.214
Combined routes, systemic, long-term		0.251

**6.3.7. Worker exposure: Professional Use of Floor care products; Polish / impregnating agent; Spray manual process (AISE-P408); Use Phase (PROC 11)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.257 mg/m <sup>3</sup> (TRA Workers 3.0)	0.073
Dermal, systemic, long-term	0.214 mg/kg bw/day (TRA Workers 3.0)	0.214
Combined routes, systemic, long-term		0.287

## **6.4. Guidance to DU to evaluate whether he works inside the boundaries**

Eucalyptus globulus, ext.,

**set by the ES**



## 7. ES 7: Consumer Use; GES6 - Consumer end-use of washing and cleaning products

### 7.1. Title section

Environment	
CS 1: GES6 - Consumer end-use of washing and cleaning products (indoor and outdoor use)	ERC 8d, ERC 8a
Consumer	
CS 2: CS1a Laundry and dish washing products [a] laundry regular (powder, liquid) AISE C1; b) laundry compact (powder, liquid/gel, tablet) AISE C2; d) Laundry additives (powder bleach, liquid bleach, tablet) AISE C4; f) Machine dishwashing (powder, liquid, tablet) ; AISE C6	PC 35
CS 3: CS1b Laundry and dish washing products [c] fabric conditioners (liquid regular, liquid concentrate) AISE C3	PC 35
CS 4: CS1c Laundry and dish washing products [e] Hand dishwashing (liquid regular, liquid concentrate) ; AISE C5	PC 35
CS 5: CS1d Laundry and dish washing products [g] Laundry aids (ironing aids-starch spray, ironing aids-other) ; AISE C12	PC 35
CS 6: CS2a Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) [a] Surface cleaners (liquid, powder, gel neat) AISE C7; b) Toilet cleaners (powder, liquid, gel, tablet) AISE C8; c) Carpet cleaners (liquid) AISE C11;	PC 35
CS 7: CS2b Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) [ d) Wipes (bathroom, kitchen, floor) AISE C15;	PC 35
CS 8: CS2c Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) [e] High pressure washers/cleaners (liquid) AISE C21; f) Automotive care (liquid) AISE C22]	PC 35
CS 9: CS3a Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) [a] Surface cleaners (spray neat) AISE C7; b) Oven cleaners (trigger spray) AISE C10; c) Carpet cleaners (spray) AISE C11;	PC 35
CS 10: CS3b Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) [d) Automotive care (spray) AISE C22]	PC 35

## 7.2. Conditions of use affecting exposure

### 7.2.1. Control of environmental exposure: GES6 - Consumer end-use of washing and cleaning products (indoor and outdoor use) (ERC 8d)

Conditions and measures related to treatment of waste (including article waste)
Dispose of waste or used sacks/containers according to local regulations.

### 7.2.2. Control of consumer exposure: CS1a Laundry and dish washing products [a) laundry regular (powder, liquid) AISE C1; b) laundry compact (powder, liquid/gel, tablet) AISE C2; d) Laundry additives (powder bleach, liquid bleach, tablet) AISE C4; f) Machine dishwashing (powder, liquid, tablet) ; AISE C6 (PC 35)

Product (article) characteristics
Covers concentrations up to 0.05 %
Oral exposure is considered to be not relevant.
Amount used, frequency and duration of use/exposure
Covers use up to 50.0 g/event
Covers use up to 1.0 events/day
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to hands.

### 7.2.3. Control of consumer exposure: CS1b Laundry and dish washing products [c) fabric conditioners (liquid regular, liquid concentrate) AISE C3 (PC 35)

Product (article) characteristics
Covers concentrations up to 0.1 %
Oral exposure is considered to be not relevant.
Amount used, frequency and duration of use/exposure
Covers use up to 50.0 g/event
Covers use up to 0.6 events/day
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to hands.

**7.2.4. Control of consumer exposure: CS1c Laundry and dish washing products [e]  
Hand dishwashing (liquid regular, liquid concentrate) ; AISE C5 (PC 35)**

<b>Product (article) characteristics</b>
Covers concentrations up to 0.1 %
Oral exposure is considered to be not relevant.
<b>Amount used, frequency and duration of use/exposure</b>
Covers use up to 10.0 g/event
Covers use up to 1.0 events/day
<b>Other conditions affecting consumers exposure</b>
Assumes that potential dermal contact is limited to hands.

**7.2.5. Control of consumer exposure: CS1d Laundry and dish washing products [g]  
Laundry aids (ironing aids-starch spray, ironing aids-other) ; AISE C12 (PC 35)**

<b>Product (article) characteristics</b>
Laundry and dish washing products
No spraying
Limit the substance content in the product to 0.00025 g/g
Oral exposure is considered to be not relevant.
<b>Amount used, frequency and duration of use/exposure</b>
Covers use up to 10.0 g/event
Covers use up to 1.0 events/day
<b>Other conditions affecting consumers exposure</b>
Assumes that potential dermal contact is limited to hands.

**7.2.6. Control of consumer exposure: CS2a Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) [a]  
Surface cleaners (liquid, powder, gel neat) AISE C7; b) Toilet cleaners (powder, liquid, gel, tablet) AISE C8; c) Carpet cleaners (liquid) AISE C11; (PC 35)**

<b>Product (article) characteristics</b>
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Covers concentrations up to 0.1 %
Oral exposure is considered to be not relevant.
<b>Amount used, frequency and duration of use/exposure</b>
Covers use up to 30.0 g/event
Covers use up to 0.25 events/day
<b>Other conditions affecting consumers exposure</b>
Assumes that potential dermal contact is limited to hands.

**7.2.7. Control of consumer exposure: CS2b Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) [ d) Wipes (bathroom, kitchen, floor) AISE C15; (PC 35)**

<b>Product (article) characteristics</b>
Covers concentrations up to 0.1 %
Oral exposure is considered to be not relevant.
<b>Amount used, frequency and duration of use/exposure</b>
Covers use up to 10.0 g/event
Covers use up to 1.0 events/day
<b>Other conditions affecting consumers exposure</b>
Assumes that potential dermal contact is limited to hands.

**7.2.8. Control of consumer exposure: CS2c Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) [e) High pressure washers/cleaners (liquid) AISE C21; f) Automotive care (liquid) AISE C22] (PC 35)**

<b>Product (article) characteristics</b>
Covers concentrations up to 0.1 %
Oral exposure is considered to be not relevant.
<b>Amount used, frequency and duration of use/exposure</b>

Covers use up to 150.0 g/event
Covers use up to 0.021 events/day
<b>Other conditions affecting consumers exposure</b>
Assumes that potential dermal contact is limited to hands.

**7.2.9. Control of consumer exposure: CS3a Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) [a) Surface cleaners (spray neat) AISE C7; b) Oven cleaners (trigger spray) AISE C10; c) Carpet cleaners (spray) AISE C11; (PC 35)**

<b>Product (article) characteristics</b>
<i>Product is a spray</i>
Covers concentrations up to 0.1 %
Oral exposure is considered to be not relevant.
<b>Amount used, frequency and duration of use/exposure</b>
Covers use up to 30.0 g/event
Covers use up to 0.25 events/day
<b>Other conditions affecting consumers exposure</b>
Assumes that potential dermal contact is limited to hands.

**7.2.10. Control of consumer exposure: CS3b Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) [d) Automotive care (spray) AISE C22] (PC 35)**

<b>Product (article) characteristics</b>
<i>Product is a spray</i>
Covers concentrations up to 0.1 %
Oral exposure is considered to be not relevant.
<b>Amount used, frequency and duration of use/exposure</b>
Covers use up to 150.0 g/event
Covers use up to 0.021 events/day

Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to hands.

### 7.3. Exposure estimation and reference to its source

#### 7.3.1. Environmental release and exposure: GES6 - Consumer end-use of washing and cleaning products (indoor and outdoor use) (ERC 8d)

Release route	Release rate	Release estimation method
Water	0.02 kg/day	ERC based
Air	0.02 kg/day	ERC based
Soil	0.004 kg/day	ERC based

Protection target	Exposure estimate (based on: EUSES 2.1.2)	RCR
Freshwater	2.247E-4 mg/L	0.11
Sediment (freshwater)	0.007 mg/kg dw	0.01
Marine water	2.106E-5 mg/L	0.103
Sediment (marine water)	6.241E-4 mg/kg dw	< 0.01
Predator (freshwater)	0.142 mg/kg ww	< 0.01
Predator (marine water)	0.013 mg/kg ww	< 0.01
Top predator (marine water)	0.009 mg/kg ww	< 0.01
Sewage treatment plant	0.001 mg/L	< 0.01
Agricultural soil	6.878E-4 mg/kg dw	< 0.01
Predator (terrestrial)	1.886E-4 mg/kg ww	< 0.01
Man via environment - Inhalation	7.491E-6 mg/m <sup>3</sup>	< 0.01
Man via environment - Oral	3.233E-4 mg/kg bw/day	< 0.01

**7.3.2. Consumer exposure: CS1a Laundry and dish washing products [a] laundry regular (powder, liquid) AISE C1; b) laundry compact (powder, liquid/gel, tablet) AISE C2; d) Laundry additives (powder bleach, liquid bleach, tablet) AISE C4; f) Machine dishwashing (powder, liquid, tablet) ; AISE C6 (PC 35)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.13 mg/m <sup>3</sup> (External Tool: TRA V3 - tier 1.5)	0.149
Dermal, systemic, long-term	0.071 mg/kg bw/day (External Tool: TRA V3 - tier 1.5)	0.142
Oral, systemic, long-term	0 mg/kg bw/day (External Tool: TRA V3 - tier 1.5)	< 0.01
Combined routes, systemic, long-term		0.291

**7.3.3. Consumer exposure: CS1b Laundry and dish washing products [c] fabric conditioners (liquid regular, liquid concentrate) AISE C3 (PC 35)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.158 mg/m <sup>3</sup> (External Tool: TRA V3 - tier 1.5)	0.182
Dermal, systemic, long-term	0.09 mg/kg bw/day (External Tool: TRA V3 - tier 1.5)	0.18
Oral, systemic, long-term	0 mg/kg bw/day (External Tool: TRA V3 - tier 1.5)	< 0.01
Combined routes, systemic, long-term		0.362

**7.3.4. Consumer exposure: CS1c Laundry and dish washing products [e] Hand dishwashing (liquid regular, liquid concentrate) ; AISE C5 (PC 35)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.156 mg/m <sup>3</sup> (External Tool: TRA V3 - tier 1.5)	0.179
Dermal, systemic, long-term	0.143 mg/kg bw/day (External Tool: TRA V3 - tier 1.5)	0.286
Oral, systemic, long-term	0 mg/kg bw/day (External Tool: TRA V3 - tier 1.5)	< 0.01
Combined routes, systemic, long-term		0.465

**7.3.5. Consumer exposure: CS1d Laundry and dish washing products [g] Laundry aids (ironing aids-starch spray, ironing aids-other) ; AISE C12 (PC 35)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.078 mg/m <sup>3</sup> (TRA Consumers 3.0)	0.09
Dermal, systemic, long-term	0.036 mg/kg bw/day (TRA Consumers 3.0)	0.071
Oral, systemic, long-term	0 mg/kg bw/day (TRA Consumers 3.0)	< 0.01
Combined routes, systemic, long-term		0.161

**7.3.6. Consumer exposure: CS2a Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) [a] Surface cleaners (liquid, powder, gel neat) AISE C7; b) Toilet cleaners (powder, liquid, gel, tablet) AISE C8; c) Carpet cleaners (liquid) AISE C11; (PC 35)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.156 mg/m <sup>3</sup> (External Tool: TRA V3 - tier 1.5)	0.179
Dermal, systemic, long-term	0.036 mg/kg bw/day (External Tool: TRA V3 - tier 1.5)	0.072
Oral, systemic, long-term	0 mg/kg bw/day (External Tool: TRA V3 - tier 1.5)	< 0.01
Combined routes, systemic, long-term		0.251

**7.3.7. Consumer exposure: CS2b Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) [ d) Wipes (bathroom, kitchen, floor) AISE C15; (PC 35)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.104 mg/m <sup>3</sup> (External Tool: TRA V3 - tier 1.5)	0.12
Dermal, systemic, long-term	0.143 mg/kg bw/day (External Tool: TRA V3 - tier 1.5)	0.286
Oral, systemic, long-term	0 mg/kg bw/day (External Tool: TRA V3 - tier 1.5)	< 0.01
Combined routes, systemic, long-term		0.406

**7.3.8. Consumer exposure: CS2c Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) [e] High pressure washers/cleaners (liquid) AISE C21; f) Automotive care (liquid) AISE C22] (PC 35)**



Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.131 mg/m <sup>3</sup> (External Tool: TRA V3 - tier 1.5)	0.151
Dermal, systemic, long-term	0.003 mg/kg bw/day (External Tool: TRA V3 - tier 1.5)	< 0.01
Oral, systemic, long-term	0 mg/kg bw/day (External Tool: TRA V3 - tier 1.5)	< 0.01
Combined routes, systemic, long-term		0.157

**7.3.9. Consumer exposure: CS3a Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) [a] Surface cleaners (spray neat) AISE C7; b) Oven cleaners (trigger spray) AISE C10; c) Carpet cleaners (spray) AISE C11; (PC 35)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.11 mg/m <sup>3</sup> (External Tool: TRA V3 - tier 1.5)	0.126
Dermal, systemic, long-term	0.036 mg/kg bw/day (External Tool: TRA V3 - tier 1.5)	0.072
Oral, systemic, long-term	0 mg/kg bw/day (External Tool: TRA V3 - tier 1.5)	< 0.01
Combined routes, systemic, long-term		0.198

**7.3.10. Consumer exposure: CS3b Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) [d] Automotive care (spray) AISE C22] (PC 35)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.103 mg/m <sup>3</sup> (External Tool: TRA V3 - tier 1.5)	0.118
Dermal, systemic, long-term	0.003 mg/kg bw/day (External Tool: TRA V3 - tier 1.5)	< 0.01
Oral, systemic, long-term	0 mg/kg bw/day (External Tool: TRA V3 - tier 1.5)	< 0.01
Combined routes, systemic, long-term		0.124

**7.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

Scaling method
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Eucalyptus globulus, ext.,

The consumers exposure and environmental emissions have been evaluated using TRA V3 – tier 1.5 and EUSES 2.1.2, respectively.

**Health**

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures / Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

**Environment**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

## 8. ES 8: Consumer Use; GES7 - Consumer end-use of air care products

### 8.1. Title section

Environment	
CS 1: GES7 - Consumer end-use of air care products	ERC 8a
Consumer	
CS 2: CS1 Air fresheners aerosol : aqueous, non-aqueous, concentrated (mini-aerosol, Timed release aerosol) ; AISE C17	PC 3
CS 3: CS2 Air fresheners non aerosol [a) perfume in/on solid substrate (gel), diffusers (heated) AISE C18; b) candles AISE C18]	PC 3

### 8.2. Conditions of use affecting exposure

#### 8.2.1. Control of environmental exposure: GES7 - Consumer end-use of air care products (ERC 8a)

Conditions and measures related to treatment of waste (including article waste)
Dispose of waste or used sacks/containers according to local regulations.

#### 8.2.2. Control of consumer exposure: CS1 Air fresheners aerosol : aqueous, non-aqueous, concentrated (mini-aerosol, Timed release aerosol) ; AISE C17 (PC 3)

Product (article) characteristics
<i>Product is a spray</i>
Covers concentrations up to 0.25 %
Oral exposure is considered to be not relevant.
Amount used, frequency and duration of use/exposure
Covers use up to 8.4 g/event
Covers use up to 1.0 events/day

#### 8.2.3. Control of consumer exposure: CS2 Air fresheners non aerosol [a) perfume in/on solid substrate (gel), diffusers (heated) AISE C18; b) candles AISE C18] (PC 3)

Product (article) characteristics
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Air care, continuous action (solid and liquid)
Limit the substance content in the product to 0.01 g/g
Oral exposure is considered to be not relevant.
<b>Amount used, frequency and duration of use/exposure</b>
Covers use up to 0.84 g/event
Covers use up to 1.0 events/day
<b>Other conditions affecting consumers exposure</b>
Assumes that potential dermal contact is limited to fingertips.

### 8.3. Exposure estimation and reference to its source

#### 8.3.1. Environmental release and exposure: GES7 - Consumer end-use of air care products (ERC 8a)

Release route	Release rate	Release estimation method
Water	0.02 kg/day	ERC based
Air	0.02 kg/day	ERC based
Soil	0 kg/day	ERC based

Protection target	Exposure estimate (based on: EUSES 2.1.2)	RCR
Freshwater	2.247E-4 mg/L	0.11
Sediment (freshwater)	0.007 mg/kg dw	0.01
Marine water	2.106E-5 mg/L	0.103
Sediment (marine water)	6.241E-4 mg/kg dw	< 0.01
Predator (freshwater)	0.142 mg/kg ww	< 0.01
Predator (marine water)	0.013 mg/kg ww	< 0.01
Top predator (marine water)	0.009 mg/kg ww	< 0.01

Protection target	Exposure estimate (based on: EUSES 2.1.2)	RCR
Sewage treatment plant	0.001 mg/L	< 0.01
Agricultural soil	6.878E-4 mg/kg dw	< 0.01
Predator (terrestrial)	1.886E-4 mg/kg ww	< 0.01
Man via environment - Inhalation	7.491E-6 mg/m <sup>3</sup>	< 0.01
Man via environment - Oral	3.233E-4 mg/kg bw/day	< 0.01

**8.3.2. Consumer exposure: CS1 Air fresheners aerosol : aqueous, non-aqueous, concentrated (mini-aerosol, Timed release aerosol) ; AISE C17 (PC 3)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.366 mg/m <sup>3</sup> (External Tool: TRA V3 - tier 1.5)	0.421
Dermal, systemic, long-term	0 mg/kg bw/day (External Tool: TRA V3 - tier 1.5)	< 0.01
Oral, systemic, long-term	0 mg/kg bw/day (External Tool: TRA V3 - tier 1.5)	< 0.01
Combined routes, systemic, long-term		0.421

**8.3.3. Consumer exposure: CS2 Air fresheners non aerosol [a) perfume in/on solid substrate (gel), diffusers (heated) AISE C18; b) candles AISE C18] (PC 3)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.072 mg/m <sup>3</sup> (TRA Consumers 3.0)	0.083
Dermal, systemic, long-term	0.006 mg/kg bw/day (TRA Consumers 3.0)	0.012
Oral, systemic, long-term	0 mg/kg bw/day (TRA Consumers 3.0)	< 0.01
Combined routes, systemic, long-term		0.095

**8.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

Scaling method
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Eucalyptus globulus, ext.,

The consumers exposure emissions have been evaluated using TRA V3 - tier 1.5 and TRA Consumers 3.0 and environmental exposure using EUSES 2.1.2.
<b>Health</b>
<p>Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures / Operational Conditions outlined in Section 2 are implemented.</p> <p>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.</p>
<b>Environment</b>
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

## 9. ES 9: Consumer Use; GES8 - Consumer end-use of biocides

### 9.1. Title section

Environment	
CS 1: GES8 - Consumer end-use of biocides (indoor and outdoor use)	ERC 8d, ERC 8a
Consumer	
CS 2: CS1 Insecticides: liquid electric, spray neat ; AISE C19	PC 8
CS 3: CS2 Repellents ; AISE C19	PC 8

### 9.2. Conditions of use affecting exposure

#### 9.2.1. Control of environmental exposure: GES8 - Consumer end-use of biocides (indoor and outdoor use) (ERC 8d)

Conditions and measures related to treatment of waste (including article waste)
Dispose of waste or used sacks/containers according to local regulations.

#### 9.2.2. Control of consumer exposure: CS1 Insecticides: liquid electric, spray neat ; AISE C19 (PC 8)

Product (article) characteristics
<i>Product is a spray</i>
Covers concentrations up to 0.25 %
Oral exposure is considered to be not relevant.
Amount used, frequency and duration of use/exposure
Covers use up to 8.4 g/event
Covers use up to 1.0 events/day

#### 9.2.3. Control of consumer exposure: CS2 Repellents ; AISE C19 (PC 8)

Product (article) characteristics
<i>Product is a spray</i>

Covers concentrations up to 1.0 %
Oral exposure is considered to be not relevant.
Air care, continuous action (solid and liquid)
<b>Amount used, frequency and duration of use/exposure</b>
Covers use up to 0.84 g/event
Covers use up to 1.0 events/day
<b>Other conditions affecting consumers exposure</b>
Assumes that potential dermal contact is limited to fingertips.

### 9.3. Exposure estimation and reference to its source

#### 9.3.1. Environmental release and exposure: GES8 - Consumer end-use of biocides (indoor and outdoor use) (ERC 8d)

Release route	Release rate	Release estimation method
Water	0.02 kg/day	ERC based
Air	0.02 kg/day	ERC based
Soil	0.004 kg/day	ERC based

Protection target	Exposure estimate (based on: EUSES 2.1.2)	RCR
Freshwater	2.247E-4 mg/L	0.11
Sediment (freshwater)	0.007 mg/kg dw	0.01
Marine water	2.106E-5 mg/L	0.103
Sediment (marine water)	6.241E-4 mg/kg dw	< 0.01
Predator (freshwater)	0.142 mg/kg ww	< 0.01
Predator (marine water)	0.013 mg/kg ww	< 0.01
Top predator (marine water)	0.009 mg/kg ww	< 0.01



## Eucalyptus globulus, ext.,

Protection target	Exposure estimate (based on: EUSES 2.1.2)	RCR
Sewage treatment plant	0.001 mg/L	< 0.01
Agricultural soil	6.878E-4 mg/kg dw	< 0.01
Predator (terrestrial)	1.886E-4 mg/kg ww	< 0.01
Man via environment - Inhalation	7.491E-6 mg/m <sup>3</sup>	< 0.01
Man via environment - Oral	3.233E-4 mg/kg bw/day	< 0.01

### 9.3.2. Consumer exposure: CS1 Insecticides: liquid electric, spray neat ; AISE C19 (PC 8)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.366 mg/m <sup>3</sup> (External Tool: TRA V3 - tier 1.5)	0.407
Dermal, systemic, long-term	0 mg/kg bw/day (External Tool: TRA V3 - tier 1.5)	< 0.01
Oral, systemic, long-term	0 mg/kg bw/day (External Tool: TRA V3 - tier 1.5)	< 0.01
Combined routes, systemic, long-term		0.407

### 9.3.3. Consumer exposure: CS2 Repellents ; AISE C19 (PC 8)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	0.072 mg/m <sup>3</sup> (External Tool: TRA V3)	0.08
Dermal, systemic, long-term	0.006 mg/kg bw/day (External Tool: TRA V3)	0.023
Oral, systemic, long-term	0 mg/kg bw/day (External Tool: TRA V3)	< 0.01
Combined routes, systemic, long-term		0.104

## 9.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

<b>Scaling method</b>
The consumers exposure emissions have been evaluated using TRA V3 - tier 1.5 and TRA V3 and environmental exposure using EUSES 2.1.2.

Eucalyptus globulus, ext.,

<b>Health</b>
<p>Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures / Operational Conditions outlined in Section 2 are implemented.</p> <p>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.</p>
<b>Environment</b>
<p>Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.</p>

## 10. ES 10: Consumer Use; GES9 - consumer end-use of polishes and wax blend

### 10.1. Title section

Environment	
CS 1: GES9 - consumer end-use of polishes and wax blend	ERC 8a
Consumer	
CS 2: CS1 Furniture, floor & leather care: wax/cream; (floor, furniture, shoes) ; AISE C20	PC 31
CS 3: CS2 Furniture, floor & leather care: spray; (furniture, shoes) ; AISE C20	PC 31

### 10.2. Conditions of use affecting exposure

#### 10.2.1. Control of environmental exposure: GES9 - consumer end-use of polishes and wax blend (ERC 8a)

Conditions and measures related to treatment of waste (including article waste)
Dispose of waste or used sacks/containers according to local regulations.

#### 10.2.2. Control of consumer exposure: CS1 Furniture, floor & leather care: wax/cream; (floor, furniture, shoes) ; AISE C20 (PC 31)

Product (article) characteristics
Polishes, wax / cream (floor, furniture, shoes)
Limit the substance content in the product to 0.001 g/g
Oral exposure is considered to be not relevant.
Polishes, wax / cream (floor, furniture, shoes)
Limit the substance content in the product to 0.001 g/g
Amount used, frequency and duration of use/exposure
For each use event, covers use amounts up to 550.0 g
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to hands.

**10.2.3. Control of consumer exposure: CS2 Furniture, floor & leather care: spray; (furniture, shoes) ; AISE C20 (PC 31)**

<b>Product (article) characteristics</b>
<i>Product is a spray</i>
Covers concentrations up to 0.1 %
Polishes, spray (furniture, shoes)
Limit the substance content in the product to 0.001 g/g
Oral exposure is considered to be not relevant.
<b>Amount used, frequency and duration of use/exposure</b>
For each use event, covers use amounts up to 135.0 g
<b>Other conditions affecting consumers exposure</b>
Covers use in room size of = 20.0 m <sup>3</sup>
Assumes that potential dermal contact is limited to hands.

**10.3. Exposure estimation and reference to its source****10.3.1. Environmental release and exposure: GES9 - consumer end-use of polishes and wax blend (ERC 8a)**

<b>Release route</b>	<b>Release rate</b>	<b>Release estimation method</b>
<b>Water</b>	0.02 kg/day	ERC based
<b>Air</b>	0.02 kg/day	ERC based
<b>Soil</b>	0 kg/day	ERC based

<b>Protection target</b>	<b>Exposure estimate (based on: EUSES 2.1.2)</b>	<b>RCR</b>
Freshwater	2.247E-4 mg/L	0.11
Sediment (freshwater)	0.007 mg/kg dw	0.01
Marine water	2.106E-5 mg/L	0.103

Eucalyptus globulus, ext.,

Protection target	Exposure estimate (based on: EUSES 2.1.2)	RCR
Sediment (marine water)	6.241E-4 mg/kg dw	< 0.01
Predator (freshwater)	0.142 mg/kg ww	< 0.01
Predator (marine water)	0.013 mg/kg ww	< 0.01
Top predator (marine water)	0.009 mg/kg ww	< 0.01
Sewage treatment plant	0.001 mg/L	< 0.01
Agricultural soil	6.878E-4 mg/kg dw	< 0.01
Predator (terrestrial)	1.886E-4 mg/kg ww	< 0.01
Man via environment - Inhalation	7.491E-6 mg/m <sup>3</sup>	< 0.01
Man via environment - Oral	3.233E-4 mg/kg bw/day	< 0.01

**10.3.2. Consumer exposure: CS1 Furniture, floor & leather care: wax/cream; (floor, furniture, shoes) ; AISE C20 (PC 31)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	1E-5 mg/m <sup>3</sup> (External Tool: <i>ConsExpo 5</i> )	< 0.01
Dermal, systemic, long-term	0.143 mg/kg bw/day (TRA Consumers 3.0)	0.286
Oral, systemic, long-term	0 mg/kg bw/day (TRA Consumers 3.0)	< 0.01
Combined routes, systemic, long-term		0.286

**10.3.3. Consumer exposure: CS2 Furniture, floor & leather care: spray; (furniture, shoes) ; AISE C20 (PC 31)**

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long-term	4.8E-7 mg/m <sup>3</sup> (External Tool: <i>ConsExpo 5</i> )	< 0.01
Dermal, systemic, long-term	0.143 mg/kg bw/day (TRA Consumers 3.0)	0.286
Oral, systemic, long-term	0 mg/kg bw/day (TRA Consumers 3.0)	< 0.01
Combined routes, systemic, long-term		0.286

#### 10.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

<b>Scaling method</b>
The consumers exposure emissions have been evaluated using TRA Consumers 3.0 and ConsExpo 5 and environmental exposure using EUSES 2.1.2.
<b>Health</b>
<p>Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures / Operational Conditions outlined in Section 2 are implemented.</p> <p>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.</p>
<b>Environment</b>
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

## 11. ES 11: Consumer Use; GES10 - Consumer end-use of cosmetics

### 11.1. Title section

Environment	
CS 1: GES10 - Consumer end-use of cosmetics	ERC 8a
Consumer	
CS 2: cosmetics, personal care products	PC 39
CS 3: perfumes, fragrances	PC 28

### 11.2. Conditions of use affecting exposure

#### 11.2.1. Control of environmental exposure: GES10 - Consumer end-use of cosmetics (ERC 8a)

Conditions and measures related to treatment of waste (including article waste)
Dispose of waste or used sacks/containers according to local regulations.

#### 11.2.2. Control of consumer exposure: cosmetics, personal care products (PC 39)

No human health assessment needed (assessed under cosmetic regulation)

#### 11.2.3. Control of consumer exposure: perfumes, fragrances (PC 28)

No human health assessment needed (assessed under cosmetic regulation).

### 11.3. Exposure estimation and reference to its source

#### 11.3.1. Environmental release and exposure: GES10 - Consumer end-use of cosmetics (ERC 8a)

Release route	Release rate	Release estimation method
Water	0.041 kg/day	ERC based
Air	0.041 kg/day	ERC based
Soil	0 kg/day	ERC based