Sicherheitsdatenblatt
gemäß 1907/2006/EG, Artikel 31

Druckdatum: 28.03.2023 Versionsnummer 8 (ersetzt Version 7) überarbeitet am: 28.03.2023

ABSCHNITT 1: Bezeichnung des Stoffs beziehungsweise des Gemischs und des Unternehmens

· **1.1 Produktidentifikator**

· **Handelsname: MEYER Balsam-Terpentinöl**

· **Artikelnummer:** 00804
· **EG-Nummer:**
932-349-8
· **Indexnummer:**
650-002-00-6
· **Registrierungsnummer** 01-2119553060-53-0007
· **1.2 Relevante identifizierte Verwendungen des Stoffs oder Gemischs und Verwendungen, von denen abgeraten wird**
Keine weiteren relevanten Informationen verfügbar.
· **Verwendung des Stoffes / des Gemisches** Verdünnungsmittel

· **1.3 Einzelheiten zum Lieferanten, der das Sicherheitsdatenblatt bereitstellt**
· **Hersteller/Lieferant:**
MEYER-CHEMIE GmbH & Co KG
Postfach 225 Telefon (05223) 92590
32122 Enger Telefax (05223) 15330

· **Auskunftgebender Bereich:** Abt. Produktsicherheit, Email: sdb@meyer-chemie.de
· **1.4 Notrufnummer:** Giftnotruf Berlin Telefon: +49(0)30 30686 700

ABSCHNITT 2: Mögliche Gefahren

· **2.1 Einstufung des Stoffs oder Gemischs**
· **Einstufung gemäß Verordnung (EG) Nr. 1272/2008**


GHS02 Flamme

Flam. Liq. 3	H226 Flüssigkeit und Dampf entzündbar.


GHS08 Gesundheitsgefahr

Asp. Tox. 1	H304 Kann bei Verschlucken und Eindringen in die Atemwege tödlich sein.


GHS09 Umwelt

Aquatic Chronic 2	H411 Giftig für Wasserorganismen, mit langfristiger Wirkung.


GHS07

Acute Tox. 4	H302 Gesundheitsschädlich bei Verschlucken.
Acute Tox. 4	H312 Gesundheitsschädlich bei Hautkontakt.
Acute Tox. 4	H332 Gesundheitsschädlich bei Einatmen.
Skin Irrit. 2	H315 Verursacht Hautreizungen.
Eye Irrit. 2	H319 Verursacht schwere Augenreizung.
Skin Sens. 1	H317 Kann allergische Hautreaktionen verursachen.

· **2.2 Kennzeichnungselemente**
· **Kennzeichnung gemäß Verordnung (EG) Nr. 1272/2008**
Der Stoff ist gemäß CLP-Verordnung eingestuft und gekennzeichnet.
· **Gefahrenpiktogramme**


GHS02 GHS07 GHS08 GHS09

· **Signalwort** Gefahr

· **Gefahrbestimmende Komponenten zur Etikettierung:**
Terpentinöl (Pinus pinaster) = Gum turpentine oil
· **Gefahrenhinweise**

H226	Flüssigkeit und Dampf entzündbar.
H302+H312+H332	Gesundheitsschädlich bei Verschlucken, Hautkontakt oder Einatmen.
H315	Verursacht Hautreizungen.
H319	Verursacht schwere Augenreizung.
H317	Kann allergische Hautreaktionen verursachen.
H304	Kann bei Verschlucken und Eindringen in die Atemwege tödlich sein.

(Fortsetzung auf Seite 2)

Sicherheitsdatenblatt
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(Fortsetzung von Seite 1)

H411 Giftig für Wasserorganismen, mit langfristiger Wirkung.

· **Sicherheitshinweise**

P101 Ist ärztlicher Rat erforderlich, Verpackung oder Kennzeichnungsetikett bereithalten.
P102 Darf nicht in die Hände von Kindern gelangen.
P103 Lesen Sie sämtliche Anweisungen aufmerksam und befolgen Sie diese.
P210 Von Hitze, heißen Oberflächen, Funken, offenen Flammen und anderen Zündquellen fernhalten. Nicht rauchen.
P243 Maßnahmen gegen elektrostatische Entladungen treffen.
P261 Einatmen von Dampf 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.
P303+P361+P353 BEI BERÜHRUNG MIT DER HAUT (oder dem Haar): Alle kontaminierten Kleidungsstücke sofort ausziehen. Haut mit Wasser abwaschen oder duschen.
P304+P341 BEI EINATMEN: Bei Atembeschwerden an die frische Luft bringen und in einer Position ruhigstellen, die das Atmen erleichtert.
P305+P351+P338 BEI KONTAKT MIT DEN AUGEN: Einige Minuten lang behutsam mit Wasser spülen. Eventuell vorhandene Kontaktlinsen nach Möglichkeit entfernen. Weiter spülen.
P332+P313 Bei Hautreizung: Ärztlichen Rat einholen/ärztliche Hilfe hinzuziehen.
P337+P313 Bei anhaltender Augenreizung: Ärztlichen Rat einholen/ärztliche Hilfe hinzuziehen.
P403+P233 An einem gut belüfteten Ort aufbewahren. Behälter dicht verschlossen halten.
P501 Inhalt/Behälter gemäß den lokalen und nationalen Vorschriften der Entsorgung zuführen.

· **2.3 Sonstige Gefahren**
· **Ergebnisse der PBT- und vPvB-Beurteilung**
· **PBT:** Nicht anwendbar.
· **vPvB:** Nicht anwendbar.

ABSCHNITT 3: Zusammensetzung/Angaben zu Bestandteilen

· **3.1 Stoffe**
· **CAS-Nr. Bezeichnung**
Terpentinöl (Pinus pinaster) = Gum turpentine oil
· **Identifikationsnummer(n)**
· **EG-Nummer:** 932-349-8
· **Indexnummer:** 650-002-00-6

ABSCHNITT 4: Erste-Hilfe-Maßnahmen

· **4.1 Beschreibung der Erste-Hilfe-Maßnahmen**
· **Allgemeine Hinweise:**
Vergiftungssymptome können erst nach vielen Stunden auftreten, deshalb ärztliche Überwachung mindestens 48 Stunden nach einem Unfall.
· **nach Einatmen:**
Reichlich Frischluftzufuhr und sicherheitshalber Arzt aufsuchen.
Bei Bewusstlosigkeit Lagerung und Transport in stabiler Seitenlage.
· **nach Hautkontakt:**
Sofort mit Wasser und Seife abwaschen und gut nachspülen. Getränkte Kleidung sofort entfernen.
· **nach Augenkontakt:**
Augen mehrere Minuten bei geöffnetem Lidspalt unter fließendem Wasser spülen.
· **nach Verschlucken:**
Bei Verschlucken kein Erbrechen herbeiführen. Sofort ärztlichen Rat einholen und Verpackung oder dieses Etikett vorzeigen.
· **4.2 Wichtigste akute und verzögert auftretende Symptome und Wirkungen**
Gesundheitsschädlich bei Einatmen.
Gesundheitsschädlich bei Hautkontakt.
Gesundheitsschädlich bei Verschlucken.
Kann bei Verschlucken und Eindringen in die Atemwege tödlich sein.
Kann allergische Hautreaktionen verursachen.
Verursacht schwere Augenreizung.
Verursacht Hautreizungen.
· **4.3 Hinweise auf ärztliche Soforthilfe oder Spezialbehandlung**
Keine weiteren relevanten Informationen verfügbar.

(Fortsetzung auf Seite 3)

Sicherheitsdatenblatt
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Handelsname: MEYER Balsam-Terpentinöl

(Fortsetzung von Seite 2)

ABSCHNITT 5: Maßnahmen zur Brandbekämpfung

· **5.1 Löschmittel**
· **Geeignete Löschmittel:**
CO2, Löschpulver oder Wassersprühstrahl. Größeren Brand mit Wassersprühstrahl oder alkoholbeständigem Schaum bekämpfen.
· **Aus Sicherheitsgründen ungeeignete Löschmittel:** Wasser im Vollstrahl.
· **5.2 Besondere vom Stoff oder Gemisch ausgehende Gefahren**
Keine weiteren relevanten Informationen verfügbar.
· **5.3 Hinweise für die Brandbekämpfung**
· **Besondere Schutzausrüstung:** Umgebungsluftunabhängiges Atemschutzgerät tragen.

ABSCHNITT 6: Maßnahmen bei unbeabsichtigter Freisetzung

· **6.1 Personenbezogene Vorsichtsmaßnahmen, Schutzausrüstungen und in Notfällen anzuwendende Verfahren**
Schutzausrüstung tragen. Ungeschützte Personen fernhalten.
· **6.2 Umweltschutzmaßnahmen:**
Nicht in die Kanalisation oder in Gewässer gelangen lassen.
Bei Eindringen in den Boden, Gewässer oder Kanalisation zuständige Behörden benachrichtigen.
· **6.3 Methoden und Material für Rückhaltung und Reinigung:**
Mit flüssigkeitsbindendem Material (Sand, Kieselgur, Säurebinder, Universalbinder, Sägemehl) aufnehmen.
Kontaminiertes Material als Abfall nach Abschnitt 13 entsorgen.
Für ausreichende Lüftung sorgen.
· **6.4 Verweis auf andere Abschnitte**
Informationen zur sicheren Handhabung siehe Abschnitt 7.
Informationen zur persönlichen Schutzausrüstung siehe Abschnitt 8.
Informationen zur Entsorgung siehe Abschnitt 13.

ABSCHNITT 7: Handhabung und Lagerung

· **7.1 Schutzmaßnahmen zur sicheren Handhabung**
Behälter dicht geschlossen halten.
Für gute Belüftung/Absaugung am Arbeitsplatz sorgen.
Aerosolbildung vermeiden.
· **Hinweise zum Brand- und Explosionsschutz:**
Zündquellen fernhalten - nicht rauchen.
Maßnahmen gegen elektrostatische Aufladung treffen.

· **7.2 Bedingungen zur sicheren Lagerung unter Berücksichtigung von Unverträglichkeiten**
· **Lagerung:**
· **Anforderung an Lagerräume und Behälter:** An einem kühlen Ort lagern.
· **Zusammenlagerungshinweise:** TRGS 510
· **Weitere Angaben zu den Lagerbedingungen:**
Vor Hitze und direkter Sonnenbestrahlung schützen.
Behälter dicht geschlossen halten.
· **TRGS 510 Lagerklasse:** 3
· **Klassifizierung nach Betriebssicherheitsverordnung (BetrSichV):** Entzündbare Flüssigkeiten
· **7.3 Spezifische Endanwendungen** Verdünnungsmittel

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ABSCHNITT 8: Begrenzung und Überwachung der Exposition/Persönliche Schutzausrüstungen

· **8.1 Zu überwachende Parameter**

· **Bestandteile mit arbeitsplatzbezogenen, zu überwachenden Grenzwerten:**	
Terpentinöl (Pinus pinaster) = Gum turpentine oil	
DFG	Kurzzeitwert: 56 mg/m³ Langzeitwert: 28 mg/m³

· **DNEL-Werte**		
Terpentinöl (Pinus pinaster) = Gum turpentine oil		
Oral	consumer, long-term systemic effects	0,31 mg/kg bw/day
Inhalativ	consumer, long-term systemic effets	1,06 mg/m³
	worker, long-term systemic effects	5,98 mg/m³

· **Zusätzliche Hinweise:** Als Grundlage dienten die bei der Erstellung gültigen Listen.

(Fortsetzung auf Seite 4)

Sicherheitsdatenblatt
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(Fortsetzung von Seite 3)

· **8.2 Begrenzung und Überwachung der Exposition**
· **Geeignete technische Steuerungseinrichtungen** Keine weiteren Angaben, siehe Abschnitt 7.
· **Individuelle Schutzmaßnahmen, zum Beispiel persönliche Schutzausrüstung**
· **Allgemeine Schutz- und Hygienemaßnahmen:**
Von Nahrungsmitteln, Getränken und Futtermitteln fernhalten.
Beschmutzte, getränkte Kleidung sofort ausziehen.
Vor den Pausen und bei Arbeitsende Hände waschen.
Berührung mit den Augen und der Haut vermeiden.
· **Atemschutz**
Bei kurzzeitiger oder geringer Belastung geeignetes Atemfiltergerät; bei intensiver bzw. längerer Exposition geeignetes umluftunabhängiges Atemschutzgerät verwenden. AGW-Werte sind einzuhalten.
Filter A.
· **Handschutz** Handschuhe / lösemittelbeständig.
· **Handschuhmaterial**
Nitrilkautschuk
Empfohlene Materialstärke: ≥ 0,4 mm
· **Durchdringungszeit des Handschuhmaterials**
Wert für die Permeation: Level ≥ 480 min.
Die ermittelten Durchbruchzeiten gemäß EN 16523-1:2015 werden nicht unter Praxisbedingungen durchgeführt. Es wird daher eine maximale Tragezeit die 50 % der Durchbruchzeit entspricht empfohlen.
· **Augen-/Gesichtsschutz** Dichtschließende Schutzbrille (EN 166).
· **Körperschutz:** lösemittelbeständige Schutzkleidung.

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ABSCHNITT 9: Physikalische und chemische Eigenschaften

· **9.1 Angaben zu den grundlegenden physikalischen und chemischen Eigenschaften**

· **Allgemeine Angaben**	
· **Farbe**	farblos
· **Geruch:**	charakteristisch
· **Schmelzpunkt/Gefrierpunkt:**	ca.-60 °C
· **Siedepunkt oder Siedebeginn und Siedebereich**	154 - 170 °C
· **Untere und obere Explosionsgrenze**	
· **untere:**	0,7 Vol %
obere:	6,1 Vol %
· **Flammpunkt:**	34 °C (ASTM D 3828-97)
· **Zündtemperatur:**	220 °C
· **Zersetzungstemperatur:**	Nicht bestimmt.
· **pH-Wert:**	nicht anwendbar
· **Viskosität:**	
· **Kinematische Viskosität**	Nicht bestimmt.
· **bei 40 °C gem. ISO 3104/3105**	
· **dynamisch bei 25 °C:**	1,3 mPas
· **Löslichkeit**	
· **Wasser bei 20 °C:**	25,5 mg/L (OECD 105)
· **Verteilungskoeffizient n-Oktanol/Wasser (log-Wert) bei 25 °C**	4,49 log POW (OECD 117)
· **Dampfdruck bei 20 °C:**	5,19 hPa
· **Dichte und/oder relative Dichte**	
· **Dichte bei 20 °C:**	0,867 g/mL (OECD 109)
· **Relative Dichte**	Nicht bestimmt.
· **Dampfdichte**	Nicht bestimmt.

· **9.2 Sonstige Angaben**

· **Aussehen:**	
· **Form:**	flüssig
· **Wichtige Angaben zum Gesundheits- und Umweltschutz sowie zur Sicherheit**	
· **Explosive Eigenschaften:**	Das Produkt ist nicht explosionsgefährlich, jedoch ist die Bildung explosionsgefährlicher Dampf-/Luftgemische möglich.
Organische Lösemittel:	100,0 %
· **Wasser:**	0,0 %
· **Festkörpergehalt:**	0,0 %

(Fortsetzung auf Seite 5)

Sicherheitsdatenblatt
gemäß 1907/2006/EG, Artikel 31

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(Fortsetzung von Seite 4)

· **Angaben über physikalische Gefahrenklassen**	
· **Explosive Stoffe/Gemische und Erzeugnisse mit Explosivstoff**	entfällt
· **Entzündbare Gase**	entfällt
· **Aerosole**	entfällt
· **Oxidierende Gase**	entfällt
· **Gase unter Druck**	entfällt
· **Entzündbare Flüssigkeiten**	
Flüssigkeit und Dampf entzündbar.	
· **Entzündbare Feststoffe**	entfällt
· **Selbstzersetzliche Stoffe und Gemische**	entfällt
· **Pyrophore Flüssigkeiten**	entfällt
· **Pyrophore Feststoffe**	entfällt
· **Selbsterhitzungsfähige Stoffe und Gemische**	entfällt
· **Stoffe und Gemische, die in Kontakt mit Wasser entzündbare Gase entwickeln**	entfällt
· **Oxidierende Flüssigkeiten**	entfällt
· **Oxidierende Feststoffe**	entfällt
· **Organische Peroxide**	entfällt
· **Gegenüber Metallen korrosiv wirkende Stoffe und Gemische**	entfällt
· **Desensibilisierte Stoffe/Gemische und Erzeugnisse mit Explosivstoff**	entfällt

ABSCHNITT 10: Stabilität und Reaktivität

· **10.1 Reaktivität** Stabil bei normaler Umgebungstemperatur und normalem Druck.
· **10.2 Chemische Stabilität**
· **Zu vermeidende Bedingungen:** Keine Zersetzung bei bestimmungsgemäßer Verwendung.
· **10.3 Möglichkeit gefährlicher Reaktionen** Kann mit Luft ein explosionsfähiges Gemisch bilden.
· **10.4 Zu vermeidende Bedingungen**
Offene Flammen vermeiden. Von Zündquellen fernhalten.
Übermäßiges Erhitzen vermeiden.
· **10.5 Unverträgliche Materialien:**
Fernhalten von starken Oxidationsmitteln und starken Säuren.
Mit dem Produkt verunreinigte Materialien wie Putzlappen können sich nach einigen Stunden spontan entzünden.
· **10.6 Gefährliche Zersetzungsprodukte:** Im Brandfall können C-oxide entstehen.

ABSCHNITT 11: Toxikologische Angaben

· **11.1 Angaben zu den Gefahrenklassen im Sinne der Verordnung (EG) Nr. 1272/2008**
· **Akute Toxizität**
Gesundheitsschädlich bei Verschlucken, Hautkontakt oder Einatmen.

· **Einstufungsrelevante LD/LC50-Werte:**

ATE (Schätzwert Akuter Toxizität)		
Oral	LD50	500 mg/kg
Dermal	LD50	1.100 mg/kg
Inhalativ	LC50/4 h	11 mg/l

· **Ätz-/Reizwirkung auf die Haut**
Verursacht Hautreizungen.
· **Schwere Augenschädigung/-reizung**
Verursacht schwere Augenreizung.
· **Sensibilisierung der Atemwege/Haut**
Kann allergische Hautreaktionen verursachen.
· **Keimzellmutagenität** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
· **Karzinogenität** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
· **Reproduktionstoxizität** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
· **Spezifische Zielorgan-Toxizität bei einmaliger Exposition**
Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
· **Spezifische Zielorgan-Toxizität bei wiederholter Exposition**
Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
· **Aspirationsgefahr**
Kann bei Verschlucken und Eindringen in die Atemwege tödlich sein.

(Fortsetzung auf Seite 6)

Sicherheitsdatenblatt
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Handelsname: MEYER Balsam-Terpentinöl

(Fortsetzung von Seite 5)

· **11.2 Angaben über sonstige Gefahren**

· **Endokrinschädliche Eigenschaften**
Der Stoff ist nicht enthalten.

ABSCHNITT 12: Umweltbezogene Angaben

· **12.1 Toxizität**
· **Aquatische Toxizität:** Giftig für Wasserorganismen, mit langfristiger Wirkung.
· **12.2 Persistenz und Abbaubarkeit** Leicht biologisch abbaubar (OECD 301).
· **12.3 Bioakkumulationspotenzial**
bei 25 °C: 4,49 log P(o/w) (OECD 117)
Aufgrund des Verteilungskoeffizienten n-Octanol/Wasser ist eine Anreicherung in Organismen möglich.
· **12.4 Mobilität im Boden** Keine weiteren relevanten Informationen verfügbar.
· **12.5 Ergebnisse der PBT- und vPvB-Beurteilung**
· **PBT:** Nicht anwendbar.
· **vPvB:** Nicht anwendbar.
· **12.6 Endokrinschädliche Eigenschaften**
Das Produkt enthält keine Stoffe mit endokrinschädlichen Eigenschaften.
· **12.7 Andere schädliche Wirkungen**
· **Weitere ökologische Hinweise:**
· **Allgemeine Hinweise:**
Wassergefährdungsklasse 2 (Listeneinstufung): deutlich wassergefährdend
Nicht in das Grundwasser, in Gewässer oder in die Kanalisation gelangen lassen.
Trinkwassergefährdung bereits beim Auslaufen geringer Mengen in den Untergrund.

ABSCHNITT 13: Hinweise zur Entsorgung

· **13.1 Verfahren der Abfallbehandlung**
· **Empfehlung:**
Sonderabfallsammler übergeben oder zu Problemstoffsammelstelle bringen.
Darf nicht zusammen mit Hausmüll entsorgt werden. Nicht in die Kanalisation gelangen lassen.

· **Europäischer Abfallkatalog**	
07 03 04	andere organische Lösemittel, Waschflüssigkeiten und Mutterlaugen

· **Ungereinigte Verpackungen:**
· **Empfehlung:** Entsorgung gemäß den behördlichen Vorschriften.

ABSCHNITT 14: Angaben zum Transport

· **14.1 UN-Nummer oder ID-Nummer**	
· **ADR, IMDG, IATA**	UN1299
· **14.2 Ordnungsgemäße UN-Versandbezeichnung**	
· **ADR**	1299 TERPENTIN, UMWELTGEFÄHRDEND
· **IMDG, IATA**	TURPENTINE
· **14.3 Transportgefahrenklassen**	
· **ADR, IMDG**	

· **Klasse**	3
· **Gefahrzettel**	3
· **IATA**	

· **Class**	3
· **Label**	3
· **14.4 Verpackungsgruppe**	
· **ADR, IMDG, IATA**	III

(Fortsetzung auf Seite 7)

Sicherheitsdatenblatt
gemäß 1907/2006/EG, Artikel 31

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Handelsname: MEYER Balsam-Terpentinöl

(Fortsetzung von Seite 6)

· **14.5 Umweltgefahren:**	
· **Marine pollutant:**	Symbol (Fisch und Baum)
· **Besondere Kennzeichnung (ADR):**	Symbol (Fisch und Baum)
· **14.6 Besondere Vorsichtsmaßnahmen für den Verwender**	Achtung:
· **Nummer zur Kennzeichnung der Gefahr (Kemler-Zahl):**	30
· **EMS-Nummer:**	F-E,S-E
· **Stowage Category**	A
· **14.7 Massengutbeförderung auf dem Seeweg gemäß IMO-Instrumenten**	Nicht anwendbar.
· **Transport/weitere Angaben:**	
· **ADR**	
· **Begrenzte Menge (LQ)**	5L
· **Freigestellte Mengen (EQ)**	Code: E1 Höchste Nettomenge je Innenverpackung: 30 ml Höchste Nettomenge je Außenverpackung: 1000 ml
· **Beförderungskategorie**	3
· **Tunnelbeschränkungscode**	D/E
· **Bemerkungen:**	Umverpackte Gebinde entsprechen ADR, Anh. A, Kap. 3.4 (begr. Menge)
· **IMDG**	
· **Limited quantities (LQ)**	5L
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **UN "Model Regulation":**	UN 1299 TERPENTIN, 3, III, UMWELTGEFÄHRDEND

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ABSCHNITT 15: Rechtsvorschriften

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

· **Richtlinie 2012/18/EU**
· **Seveso-Kategorie**
E2 Gewässergefährdend
P5c ENTZÜNDBARE FLÜSSIGKEITEN
· **Mengenschwelle (in Tonnen) für die Anwendung in Betrieben der unteren Klasse** 200 t
· **Mengenschwelle (in Tonnen) für die Anwendung in Betrieben der oberen Klasse** 500 t
· **VERORDNUNG (EG) Nr. 1907/2006 ANHANG XVII** Beschränkungsbedingungen: 3

· **Richtlinie 2011/65/EU zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten – Anhang II**
Der Stoff ist nicht enthalten.

· **VERORDNUNG (EU) 2019/1148**

· **Anhang I - BESCHRÄNKTE AUSGANGSSTOFFE FÜR EXPLOSIVSTOFFE (Oberer Konzentrationsgrenzwert für eine Genehmigung nach Artikel 5 Absatz 3)**
Der Stoff ist nicht enthalten.

· **Anhang II - MELDEPFLICHTIGE AUSGANGSSTOFFE FÜR EXPLOSIVSTOFFE**
Der Stoff ist nicht enthalten.

· **Verordnung (EG) Nr. 273/2004 betreffend Drogenausgangsstoffe**
Der Stoff ist nicht enthalten.

· **Verordnung (EG) Nr. 111/2005 zur Festlegung von Vorschriften für die Überwachung des Handels mit Drogenaustauschstoffen zwischen der Gemeinschaft und Drittländern**
Der Stoff ist nicht enthalten.

· **Nationale Vorschriften:**

· **Hinweise zur Beschäftigungsbeschränkung:**
Beschäftigungsbeschränkungen für Jugendliche beachten.

(Fortsetzung auf Seite 8)

Sicherheitsdatenblatt
gemäß 1907/2006/EG, Artikel 31

Druckdatum: 28.03.2023 Versionsnummer 8 (ersetzt Version 7) überarbeitet am: 28.03.2023

Handelsname: MEYER Balsam-Terpentinöl

(Fortsetzung von Seite 7)

· **Störfallverordnung (12. BImSchV):**
Die Mengenschwellen laut Störfallverordnung sind zu beachten.

· **Technische Anleitung Luft:**

Klasse	Anteil in %
NK	100,0

· **Wassergefährdungsklasse (AwSV):** WGK 2 (Listeneinstufung): deutlich wassergefährdend.

· **Sonstige Vorschriften, Beschränkungen und Verbotsverordnungen**
DGUV Regel 112-190 Benutzung von Atemschutzgeräten
DGUV Regel 112-192 Benutzung von Augen- und Gesichtsschutz
DGUV Regel 112-195 Benutzung von Schutzhandschuhen

· **15.2 Stoffsicherheitsbeurteilung:** Eine Stoffsicherheitsbeurteilung wurde durchgeführt.

ABSCHNITT 16: Sonstige Angaben

Die Angaben stützen sich auf den heutigen Stand unserer Kenntnisse, sie stellen jedoch keine Zusicherung von Produkteigenschaften dar und begründen kein vertragliches Rechtsverhältnis. Sie beziehen sich nur auf das bezeichnete Produkt und können nicht mehr zutreffen, wenn das Produkt zusammen mit anderen Materialien oder in einem Verarbeitungsprozess verwendet wird. Der Verwender muß sich selbst davon überzeugen, daß alle Aussagen für seinen jeweiligen Gebrauch geeignet und vollständig sind.

· **Ansprechpartner:** Dr. Thomas Meyer
· **Datum der Vorgängerversion:** 04.03.2019
· **Versionsnummer der Vorgängerversion:** 7
· **Abkürzungen und Akronyme:**
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DNEL: Derived No-Effect Level (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 3: Entzündbare Flüssigkeiten – Kategorie 3
Acute Tox. 4: Akute Toxizität – Kategorie 4
Skin Irrit. 2: Hautreizende/-ätzende Wirkung – Kategorie 2
Eye Irrit. 2: Schwere Augenschädigung/Augenreizung – Kategorie 2
Skin Sens. 1: Sensibilisierung der Haut – Kategorie 1
Asp. Tox. 1: Aspirationsgefahr – Kategorie 1
Aquatic Chronic 2: Gewässergefährdend - langfristig gewässergefährdend – Kategorie 2
· *** Daten gegenüber der Vorversion geändert**

Exposure Scenario: Use of solvents (Consumer)

Substance Name: Turpentine, oil (gum)
EC Number: 932-349-8

Note: The EINECS entry Turpentine, oil (CAS 8006-64-2, EINECS 232-350-7) covers different substances according to REACH. For practical reasons related to the submission in REACH-IT, the EC number 932-349-8 and the EC name Turpentine, oil (gum) were given by ECHA to gum turpentine oil after the 2010 registrations.

Registration Number: 01-2119553060-53-0007

Title of the Exposure scenario

Use of solvents (Consumer)
SU 21 Private households (= general public = consumers)

Wide dispersive indoor use of processing aids in open systems: Indoor use of processing aids by the public at large or professional use. Use (usually) results in direct release into the environment/sewage system, for example, detergents in fabric washing, machine wash liquids and lavatory cleaners, automotive and bicycle care products (polishes, lubricants, de-icers), solvents in paints and adhesives or fragrances and aerosol propellants in air fresheners.	ERC8a
Wide dispersive outdoor use of processing aids in open systems: Outdoor use of processing aids by the public at large or professional use. Use (usually) results in direct release into the environment, for example, automotive and bicycle care products (polishes, lubricants, de-icers, detergents), solvents in paints and adhesives.	ERC8d
Wide dispersive indoor use of substances in closed systems: Indoor use of substances by the public at large or professional (small scale) use in closed systems. Use in closed equipment, such as the use of cooling liquids in refrigerators, oil-based electric heaters.	ERC9a
Wide dispersive outdoor use of substances in closed systems: Outdoor use of substances by the public at large or professional (small scale) use in closed systems. Use in closed equipment, such as the use of hydraulic liquids in automotive suspension, lubricants in motor oil and break fluids in automotive brake systems.	ERC9b SPERC[1]

Consumer

Consumer use of solvents. Includes transfers, equipment cleaning and disposal of wastes. Non-metal-surface treatment products	PC15

[1] ESVOC 7, ESVOC 10, ESVOC 17, ESVOC 22, ESVOC 37, ESVOC 16, ESVOC 30, ESVOC 33, ESVOC 52

Conditions of use affecting exposure
Control of environmental exposure: Use of solvents (Consumer)
Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%) [STP3]	96,18
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%) [STP4]	96,18

Maximum allowable site tonnage (MSafe) (kg/d): [STP10]	SpERC	STP10
	ESVOC 7	2.71
	ESVOC 10	2.69
	ESVOC 17	2.65
	ESVOC 22	2.73
	ESVOC 37	2.69
	ESVOC 16	2.71
	ESVOC 30	2.73
	ESVOC 33	2.69
	ESVOC 52	2.73
Assumed domestic sewage treatment plant flow (m3/d) [STP5]	2000	

Product characteristics
Substance is complex UVCB. [PrC3] Non-hydrophobic. [PrC4b] Readily biodegradable. [PrC5a]
Amounts used

Maximum daily site tonnage (kg/day) [A4]	SpERC	A4
	ESVOC 7	0.0274
	ESVOC 10	0.0274
	ESVOC 17	0.0274
	ESVOC 22	0.0274
	ESVOC 37	0.0274
	ESVOC 16	0.0274
	ESVOC 30	0.0274
	ESVOC 33	0.0274
	ESVOC 52	0.0274
Annual site tonnage (tonnes/year) [A5]	SpERC	A5
	ESVOC 7	0.01
	ESVOC 10	0.01
	ESVOC 17	0.01
	ESVOC 22	0.01
	ESVOC 37	0.01
	ESVOC 16	0.01
	ESVOC 30	0.01
	ESVOC 33	0.01
	ESVOC 52	0.01

Frequency and duration of use

Emission type	Not applicable for wide dispersive use. [DSU5]
Emission days (days/year)	365

Environment factors not influenced by risk management

Local freshwater dilution factor [EF1]	10
Local marine water dilution factor [EF2]	100
Receiving surface water flow (m3/d) [EF3]	18000

Other given operational conditions affecting environmental exposure

Indoor/Outdoor use. [OOC3]

Release fraction to air from process (initial release prior to RMM) [OOC4]

SpERC	OOC4
ESVOC 7	0.985
ESVOC 10	0.95
ESVOC 17	0.15
ESVOC 22	1
ESVOC 37	0.95
ESVOC 16	0.01
ESVOC 30	0.0001
ESVOC 33	0.05
ESVOC 52	0.005

Release fraction to wastewater from process (initial release prior to RMM) [OOC5]

SpERC	OOC5
ESVOC 7	0.01
ESVOC 10	0.025
ESVOC 17	0.05
ESVOC 22	0
ESVOC 37	0.025
ESVOC 16	0.01
ESVOC 30	0.00001
ESVOC 33	0.025
ESVOC 52	0

Release fraction to soil from process (initial release prior to RMM) [OOC6]

SpERC	OOC6
ESVOC 7	0.005
ESVOC 10	0.025
ESVOC 17	0.05
ESVOC 22	0
ESVOC 37	0.025
ESVOC 16	0.01
ESVOC 30	0.00001
ESVOC 33	0.025
ESVOC 52	0

Technical conditions and measures at process level (source) to prevent release

Common practices vary across sites thus conservative process release estimates used. [TCS1]

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

None

Organizational measures to prevent/limit release from site

Prevent environmental discharge consistent with regulatory requirements. [OMS4]

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations. [ETW3]

Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations. [ERW1]

2.2 Control of consumer exposure for: PC15: Non-metal surface treatment products—
Product characteristics

Liquid, vapour pressure > 10 Pa [OC15]. Vapour pressure: 5.19E+02 Pa.

Amount used, frequency and duration of use/exposure

Unless otherwise stated, cover concentrations up to 50% [ConsOC1].
Unless otherwise stated; covers use amounts up to 3750 g [ConsOC2]; covers skin contact area up to 857,5 cm2 [ConsOC5].
Unless otherwise stated, covers use frequency up to 1 time per day [ConsOC4]; covers exposure up to 2,2 hours per event [ConsOC14].
Unless otherwise stated, covers use frequency up to 365 days per year.

Other operational conditions affecting consumers exposure
Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m3 room [ConsOC11]; assumes use with typical ventilation [ConsOC8].
Unless otherwise stated, covers concentrations up to 0,26% [ConsOC1]; covers use up to 1 days/year[ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 857,50 cm2 [ConsOC5]; for each use event, covers use amounts up to 1000g [ConsOC2]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2,20hr/event[ConsOC14].
Conditions and measures related to personnel protection, hygiene and health evaluation
No specific RMMs identified beyond those OCs stated
Additional good practice advice beyond the CSA

3. Exposure estimation and reference to its source
3.1. Environment
3.1.1 Use of solvents (Consumer)

Release route	Release rate	Release estimation method
Water (Sewage)	local release rate: 2.74E-04 kg/day	SpERC: ESVOC 7
Air	local release rate: 0.027 kg/day	
Soil	release rate: 1.37E-4 kg/day	

Protection target	Exposure estimate (Based on: ECETOC TRA Version 2)[1]	PNEC	RCR
Freshwater (pelagic)	8.88E-5 mg/L	0.0088 mg/L	1.01E-2
Freshwater (sediment)	2.29E-2 mg/kg dw	2.27 mg/kg dw	1.01E-2
Marine water (pelagic)	7.52E-6 mg/L	0.00088 mg/L	8.54E-3
Marine water (sediment)	1.94E-3 mg/kg dw	0.227 mg/kg dw	8.55E-3
Sewage treatment plant	5.23E-6 mg/L	6.6mg/L	7.93E-7
Sewage treatment plant (intermittent release)	1.37E-4 mg/L		
Air	7.39E-5 mg/m³		
Agricultural soil	1.68E-5 mg/kg dw	0.45 mg/kg dw	1.33E-4

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RCR = 7.08E-4

3.1.2 Use of solvents (Consumer)

Release route	Release rate	Release estimation method
Water (Sewage)	local release rate: 6.85E-4 kg/day	SpERC: ESVOC 10
Air	local release rate: 0.026 kg/day	
Soil	release rate: 6.85E-4 kg/day	

Protection target	Exposure estimate (Based on: ECETOC TRA Version 2)[1]	PNEC	RCR
Freshwater (pelagic)	8.96E-5 mg/L	0.0088 mg/L	1.02E-2
Freshwater (sediment)	2.31E-2 mg/kg dw	2.27 mg/kg dw	1.02E-2
Marine water (pelagic)	7.60E-6 mg/L	0.00088 mg/L	8.63E-3
Marine water (sediment)	1.96E-3 mg/kg dw	0.227 mg/kg dw	8.64E-3
Sewage treatment plant	1.31E-5 mg/L	6.6mg/L	1.98E-6
Sewage treatment plant (intermittent release)	3.42E-4 mg/L		
Air	7.40E-5 mg/m³		
Agricultural soil	3.61E-5 mg/kg dw	0.45 mg/kg dw	3.20E-4

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RCR = 7.08E-4

[1]ECETOC TRA version 2 in advanced mode with spERC APPROAC

3.1.3 Use of solvents (Consumer)

Release route	Release rate	Release estimation method
Water (Sewage)	local release rate: 1.37E-3 kg/day	SpERC: ESVOC 17
Air	local release rate: 4.11E-3 kg/day	
Soil	release rate: 1.37E-3 kg/day	

Protection target	Exposure estimate (Based on: ECETOC TRA Version 2)[1]	PNEC	RCR
Freshwater (pelagic)	9.09E-5 mg/L	0.0088 mg/L	1.03E-2
Freshwater (sediment)	2.35E-2 mg/kg dw	2.27 mg/kg dw	1.03E-2
Marine water (pelagic)	7.73E-6 mg/L	0.00088 mg/L	8.78E-3
Marine water (sediment)	2.00E-3 mg/kg dw	0.227 mg/kg dw	8.79E-3
Sewage treatment plant	2.62E-5 mg/L	6.6mg/L	3.97E-6
Sewage treatment plant (intermittent release)	6.85E-4 mg/L		
Air	7.41E-5 mg/m³		
Agricultural soil	6.82E-5 mg/kg dw	0.45 mg/kg dw	6.30E-4

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RCR = 7.08E-4

3.1.4 Use of solvents (Consumer)

Release route	Release rate	Release estimation method
Water (Sewage)	local release rate: 0 kg/day	SpERC: ESVOC 22
Air	local release rate: 0.0274 kg/day	
Soil	release rate: 0 kg/day	

Protection target	Exposure estimate (Based on: ECETOC TRA Version 2)[1]	PNEC	RCR
Freshwater (pelagic)	8.83E-5 mg/L	0.0088 mg/L	1.00E-2
Freshwater (sediment)	2.28E-2 mg/kg dw	2.27 mg/kg dw	1.00E-2
Marine water (pelagic)	7.46E-6 mg/L	0.00088 mg/L	8.48E-3
Marine water (sediment)	1.93E-3 mg/kg dw	0.227 mg/kg dw	8.49E-3
Sewage treatment plant	5.23E-19 mg/L	6.6mg/L	7.93E-20
Sewage treatment plant (intermittent release)	1.37E-17 mg/L		
Air	7.39E-5 mg/m³		
Agricultural soil	3.99E-6 mg/kg dw	0.45 mg/kg dw	8.86E-6

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RCR = 7.08E-4

[1]ECETOC TRA version 2 in advanced mode with spERC APPROACH

3.1.5 Use of solvents (Consumer)

Release route	Release rate	Release estimation method
Water (Sewage)	local release rate: 6.85E-04 kg/day	SpERC: ESVOC 37
Air	local release rate: 0.26 kg/day	
Soil	release rate: 6.85E-04 kg/day	

Protection target	Exposure estimate (Based on: ECETOC TRA Version 2)[1]	PNEC	RCR
Freshwater (pelagic)	8.96E-5 mg/L	0.0088 mg/L	1.02E-2
Freshwater (sediment)	2.31E-2 mg/kg dw	2.27 mg/kg dw	1.02E-2
Marine water (pelagic)	7.60E-6 mg/L	0.00088 mg/L	8.63E-3
Marine water (sediment)	1.96E-3 mg/kg dw	0.227 mg/kg dw	8.64E-3
Sewage treatment plant	1.31E-5 mg/L	6.6mg/L	1.98E-6
Sewage treatment plant (intermittent release)	3.42E-4 mg/L		
Air	7.40E-5 mg/m³		
Agricultural soil	3.61E-5 mg/kg dw	0.45 mg/kg dw	3.20E-4

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RCR = 7.08E-4

3.1.6 Use of solvents (Consumer)

Release route	Release rate	Release estimation method
Water (Sewage)	local release rate: 2.74E-04 kg/day	SpERC: ESVOC 16
Air	local release rate: 2.74E-04 kg/day	
Soil	release rate: 2.74E-04 kg/day	

Protection target	Exposure estimate (Based on: ECETOC TRA Version 2)[1]	PNEC	RCR
Freshwater (pelagic)	8.88E-5 mg/L	0.0088 mg/L	1.01E-2
Freshwater (sediment)	2.29E-2 mg/kg dw	2.27 mg/kg dw	1.01E-2
Marine water (pelagic)	7.52E-6 mg/L	0.00088 mg/L	8.54E-3
Marine water (sediment)	1.94E-3 mg/kg dw	0.227 mg/kg dw	8.55E-3
Sewage treatment plant	5.23E-6 mg/L	6.6mg/L	7.93E-7
Sewage treatment plant (intermittent release)	1.37E-4 mg/L		
Air	7.39E-5 mg/m³		
Agricultural soil	1.68E-5 mg/kg dw	0.45 mg/kg dw	1.33E-4

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RCR = 7.08E-4

[1]ECETOC TRA version 2 in advanced mode with spERC APPROACH

3.1.7 Use of solvents (Consumer)

Release route	Release rate	Release estimation method
Water (Sewage)	local release rate: 2.74E-07 kg/day	SpERC: ESVOC 30
Air	local release rate: 2.74E-05 kg/day	
Soil	release rate: 2.74E-07 kg/day	

Protection target	Exposure estimate (Based on: ECETOC TRA Version 2)[1]	PNEC	RCR
Freshwater (pelagic)	8.83E-5 mg/L	0.0088 mg/L	1.00E-2
Freshwater (sediment)	2.28E-2 mg/kg dw	2.27 mg/kg dw	1.00E-2
Marine water (pelagic)	7.46E-6 mg/L	0.00088 mg/L	8.48E-3
Marine water (sediment)	1.93E-3 mg/kg dw	0.227 mg/kg dw	8.49E-3
Sewage treatment plant	5.23E-9 mg/L	6.6mg/L	7.93E-10
Sewage treatment plant (intermittent release)	1.37E-7 mg/L		
Air	7.39E-5 mg/m³		
Agricultural soil	4.00E-6 mg/kg dw	0.45 mg/kg dw	3.20E-4

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RCR = 7.08E-4

3.1.8 Use of solvents (Consumer)

Release route	Release rate	Release estimation method
Water (Sewage)	local release rate: 6.86E-04 kg/day	SpERC: ESVOC 33
Air	local release rate: 1.37E-03 kg/day	
Soil	release rate: 6.86E-04 kg/day	

Protection target	Exposure estimate (Based on: ECETOC TRA Version 2)[1]	PNEC	RCR
Freshwater (pelagic)	8.96E-5 mg/L	0.0088 mg/L	1.02E-2
Freshwater (sediment)	2.31E-2 mg/kg dw	2.27 mg/kg dw	1.02E-2
Marine water (pelagic)	7.60E-6 mg/L	0.00088 mg/L	8.63E-3
Marine water (sediment)	1.96E-3 mg/kg dw	0.227 mg/kg dw	8.64E-3
Sewage treatment plant	1.31E-5 mg/L	6.6mg/L	1.98E-6
Sewage treatment plant (intermittent release)	3.42E-4 mg/L		
Air	7.40E-5 mg/m³		
Agricultural soil	3.61E-5 mg/kg dw	0.45 mg/kg dw	3.20E-4

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RCR = 7.

[1]ECETOC TRA version 2 in advanced mode with spERC APPROACH

3.1.9 Use of solvents (Consumer)

Release route	**Release rate**	**Release estimation method**
Water (Sewage)	local release rate: 0 kg/day	SpERC: ESVOC 52
Air	local release rate: 1.37E-04 kg/day	
Soil	release rate: 0 kg/day	

Protection target	**Exposure estimate (Based on: ECETOC TRA Version 2)[1]**	**PNEC**	**RCR**
Freshwater (pelagic)	8.83E-5 mg/L	0.0088 mg/L	1.00E-2
Freshwater (sediment)	2.28E-2 mg/kg dw	2.27 mg/kg dw	1.00E-2
Marine water (pelagic)	7.46E-6 mg/L	0.00088 mg/L	8.48E-3
Marine water (sediment)	1.93E-3 mg/kg dw	0.227 mg/kg dw	8.49E-3
Sewage treatment plant	5.23E-19 mg/L	6.6mg/L	7.93E-20
Sewage treatment plant (intermittent release)	1.37E-17 mg/L		
Air	7.39E-5 mg/m³		
Agricultural soil	3.99E-6 mg/kg dw	0.45 mg/kg dw	8.86E-6

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RCR = 7.08E-4

[1]ECETOC TRA version 2 in advanced mode with spERC APPROACH

3.2 Consumer exposure

$DNEL_{Inhal}$: 5.98 mg/m³ (long-term systemic effects)
$DNEL_{dermal}$: 161µg/cm² (acute – local)
$DNEL_{oral\ long\text{-}term\ systemic}$: 0.31 mg/kg b.w./day

Contributing scenario	**Dermal** (acute-local)	**Oral** (long-term systemic)	**Inhalation** (long-term systemic)	**Exposure estimation Method**
Control of consumer Exposure for: PC15: Non-metal surface treatment	**Exposure:** **2,11E-02 mg/cm²** **RCR**: 9.14E-01	**Exposure:** **n.a.mg/kg day** **RCR**: n.a.	**1.74E-02 ppm** **RCR**: 1.12E-02	$Dermal_{acute-local}$: ECETOC TRA $Oral_{long\text{-}term\ systemic}$: ECETOC TRA Inhal: ECETOC TRA RMM: see 2. Control of workers

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

4.1 Guidance to DU with respect to industrial uses
Comparable situation: DU is obliged to check if the uses of the product at his site are covered by ES54. In case of similar exposure estimates, ES54 is likely to fit. No further action is necessary.
Less product uses: DU uses less amounts of the product and the uses are covered by ES54, no further action is necessary.
Cases not described: Please, contact the supplier for further information.
4.2 Guidance to DU with respect to the environment
Comparable situation: DU is obliged to check whether the environmental conditions at his site are similar and the amount of product used is similar or lower. In case of similar environmental situation and product amounts, ES54 is likely to fit. No further action is necessary.
Dilution higher than in ES54: Safe use is likely, no further action is necessary.
Cases not described: Please, contact the supplier for further information.

Exposure Scenario: Use of solvents (Professional Application)

Substance Name: Turpentine, oil (gum)

EC Number: 932-349-8
Note: The EINECS entry Turpentine, oil (CAS 8006-64-2, EINECS 232-350-7) covers different substances according to REACH. For practical reasons related to the submission in REACH-IT, the EC number 932-349-8 and the EC name Turpentine, oil (gum) were given by ECHA to gum turpentine oil after the 2010 registrations.
Registration Number: 01-2119553060-53-0007
Date of Generation/Revision: 13.05.2014
Author: WEISSMEER BALTISCHE Import-Export GmbH
ES49: Use of solvents (Professional Application)

Title of the Exposure scenario
Use of solvents (Professional Application)
SU 22 Public domain (administration, education, entertainment, services, craftsmen)

Wide dispersive indoor use of processing aids in open systems: Indoor use of processing aids by the public at large or professional use. Use (usually) results in direct release into the environment/sewage system, for example, detergents in fabric washing, machine wash liquids and lavatory cleaners, automotive and bicycle care products (polishes, lubricants, de-icers), solvents in paints and adhesives or fragrances and aerosol pro-pellants in air fresheners.	ERC 8a
Wide dispersive outdoor use of processing aids in open systems: Outdoor use of processing aids by the public at large or professional use. Use (usually) results in direct release into the environment, for example, automotive and bicycle care products (polishes, lubricants, de-icers, detergents), solvents in paints and adhesives.	ERC 8d
Wide dispersive indoor use of substances in closed systems: Indoor use of substances by the public at large or professional (small scale) use in closed systems. Use in closed equipment, such as the use of cooling liquids in refrigerators, oil-based electric heaters.	ERC 9a
Wide dispersive outdoor use of substances in closed systems: Outdoor use of substances by the public at large or professional (small scale) use in closed systems. Use in closed equipment, such as the use of hydraulic liquids in automotive suspension, lubricants in motor oil and break fluids in automotive brake systems.	ERC 9b SPERC[1]

Worker
Industrial use of solvents (process chemical or extraction agent). Includes recycling/ recovery, transfers, storage, equipment cleaning, maintenance, sampling, associated laboratory activities and disposal of wastes.

Formulation and distribution / compounding in closed system, no likelihood of exposure	PROC 1
Use in closed, continuous process with occasional controlled exposure	PROC 2
Use in closed batch process (synthesis or formulation)	PROC 3
Use in batch and other process (synthesis) where opportunity for exposure arises	PROC 4
Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)	PROC 5
Transfer of substance or preparation (charging/discharging) from/to ves-sels/large containers at non-dedicated facilities	PROC 8a
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	PROC 8b
Roller application or brushing	PROC 10
Non industrial spraying	PROC 11
Treatment of articles by dipping andpouring	PROC 13
Use as laboratory reagent	PROC 15

[1] ESVOC 39, ESVOC 45, ESVOC 6, ESVOC 9, ESVOC 15, ESVOC 20, ESVOC 21, ESVOC 25, ESVOC 26, ESVOC 14, ESVOC 19, ESVOC 29, ESVOC 32, ESVOC 50, ESVOC 51

2. Conditions of use affecting exposure
2.1 Control of environmental exposure: Use of solvents (Professional Application)
Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%) [STP3]	96.18
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%) [STP4]	96.18

Maximum allowable site tonnage (MSafe) (kg/d): [STP10]

SpERC	STP10
ESVOC 39	2.11
ESVOC 45	2.71
ESVOC 6	2.71
ESVOC 9	2.73
ESVOC 15	2.65
ESVOC 20	2.65
ESVOC 21	2.73
ESVOC 25	2.69
ESVOC 26	10.66
ESVOC 14	2.71
ESVOC 19	2.69
ESVOC 29	2.73
ESVOC 32	2.69
ESVOC 50	6638
ESVOC 51	2.73

Assumed domestic sewage treatment plant flow (m^3/d) [STP5] 2000

Product characteristics
Substance is complex UVCB. [PrC3] Non-hydrophobic. [PrC4b] Readily biodegradable. [PrC5a]

Amounts used
Maximum daily site tonnage (kg/day) [A4]

SpERC	A4
ESVOC 39	0.0274
ESVOC 45	0.0274
ESVOC 6	0.0274
ESVOC 9	0.0274
ESVOC 15	0.0274
ESVOC 20	0.0274
ESVOC 21	0.0274
ESVOC 25	0.0274
ESVOC 26	0.1096
ESVOC 14	0.0274
ESVOC 19	0.0274
ESVOC 29	0.0274
ESVOC 32	0.0274
ESVOC 50	66.67
ESVOC 51	0.0274

Annual site tonnage (tonnes/year) [A5]

SpERC	A5
ESVOC 39	0.01
ESVOC 45	0.01
ESVOC 6	0.01
ESVOC 9	0.01
ESVOC 15	0.01
ESVOC 20	0.01
ESVOC 21	0.01
ESVOC 25	0.01
ESVOC 26	0.04
ESVOC 14	0.01
ESVOC 19	0.01
ESVOC 29	0.01
ESVOC 32	0.01
ESVOC 50	20
ESVOC 51	0.01

Frequency and duration of use

Emission type	Dispersive use. [FD3]
Emission days (days/year)	365, except for ESVOV 50: 300

Environment factors not influenced by risk management

Local freshwater dilution factor [EF1]	10
Local marine water dilution factor [EF2]	100
Receiving surface water flow (m3/d) [EF3]	18000

Other given operational conditions affecting environmental exposure

Indoor/Outdoor use. [OOC3]

Release fraction to air from process (initial release prior to RMM) [OOC4]

SpERC	OOC4
ESVOC 39	0.5
ESVOC 45	0.98
ESVOC 6	0.98
ESVOC 9	0.02
ESVOC 15	0.15
ESVOC 20	0.15
ESVOC 21	1
ESVOC 25	0.95
ESVOC 26	0.9
ESVOC 14	0.01
ESVOC 19	0.05
ESVOC 29	0.001
ESVOC 32	0.05
ESVOC 50	0.001
ESVOC 51	0.005

Release fraction to wastewater from process (initial release prior to RMM) [OOC5]	SpERC	OOC5
	ESVOC 39	0.5
	ESVOC 45	0.01
	ESVOC 6	0.01
	ESVOC 9	0
	ESVOC 15	0.05
	ESVOC 20	0.05
	ESVOC 21	0.025
	ESVOC 25	0.025
	ESVOC 26	0.01
	ESVOC 14	0.01
	ESVOC 19	0.025
	ESVOC 29	0.00001
	ESVOC 32	0
	ESVOC 50	0
	ESVOC 51	0

Release fraction to soil from process (initial release prior to RMM) [OOC6]	SpERC	OOC6
	ESVOC 39	0
	ESVOC 45	0.01
	ESVOC 6	0.01
	ESVOC	9 0
	ESVOC 15	0.05
	ESVOC 20	0.05
	ESVOC 21	0
	ESVOC 25	0.025
	ESVOC 26	0.09
	ESVOC 14	0.01
	ESVOC 19	0
	ESVOC 29	0.00001
	ESVOC 32	0.025
	ESVOC 50	0
	ESVOC 51	0

Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used. [TCS1]
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
none
Organizational measures to prevent/limit release from site
Prevent environmental discharge consistent with regulatory requirements. [OMS4]
Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations. [ETW3]
Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations. [ERW1]

2.2 Control of workers for: Uses in closed system, no likelihood of exposure (closed systems) [CS107] (Process at temperature below 70°C.) (PROC 1)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max < 70°C; indoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Handle substance within a closed system [E47]. Store substance within a closed system [E84].
Additional good practice advice beyond the CSA

2.3 Control of workers for: Use in closed continuous process: Continuous process [CS54] (closed systems) [CS107] (Process at temperature below 70°C.) (PROC 2)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max < 70°C; indoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Physical containment or enclosure of the source of emission. The air within the enclosure is not actively ventilated or extracted. The enclosure is not opened during the activity. The material transfer is enclosed with the receiving vessel being docked or sealed to the source vessel (for activities with open liquid surfaces or open reservoirs).
Additional good practice advice beyond the CSA

2.4 Control of workers for: Use in closed batch process. Mixing operations (closed systems) [CS29].Batch process [CS55]. (Process at temperature below 70°C.) (PROC 3)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max < 70°C; indoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Physical containment or enclosure of the source of emission. The air within the enclosure is not actively ventilated or extracted. The enclosure is not opened during the activity. The material transfer is enclosed with the receiving vessel being docked or sealed to the source vessel (for activities with open liquid surfaces or open reservoirs).
Additional good practice advice beyond the CSA

2.5 Control of workers for: Use in batch process. Batch process [CS55]. (Process at temperature below 70°C.) (PROC 4)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max < 70°C; indoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Provide extract ventilation to points where emissions occur [E54]. Physical containment or enclosure of the source of emission. The air within the enclosure is not actively ventilated or extracted. The enclosure is not opened during the activity. The material transfer is enclosed with the receiving vessel being docked or sealed to the source vessel (for activities with open liquid surfaces or open reservoirs).
Additional good practice advice beyond the CSA

2.6 Control of workers for: Use in batch process (aerosol): Batch process [CS55] (Process at temperature below 70°C.) (PROC 4)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max < 70°C; indoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Provide extract ventilation to points where emissions occur [E54]. Physical containment or enclosure of the source of emission. The air within the enclosure is not actively ventilated or extracted. The enclosure is not opened during the activity. The material transfer is enclosed with the receiving vessel being docked or sealed to the source vessel (for activities with open liquid surfaces or open reservoirs).
Additional good practice advice beyond the CSA

2.7 Control of workers for: Use in batch process: Batch process [CS55] (Process at temperature below 70°C.) (PROC 4)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max < 70°C; indoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Provide extract ventilation to points where emissions occur [E54]. Physical containment or enclosure of the source of emission. The air within the enclosure is not actively ventilated or extracted. The enclosure is not opened during the activity. The material transfer is enclosed with the receiving vessel being docked or sealed to the source vessel (for activities with open liquid surfaces or open reservoirs).
Additional good practice advice beyond the CSA

2.8 Control of workers for: Mixing in batch processes: Mixing operations (open systems) [CS30]. Batch process [CS55]. (Process at temperature below 70°C.) (PROC 5)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max < 70°C; indoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Provide extract ventilation to points where emissions occur [E54]. Physical containment or enclosure of the source of emission. The air within the enclosure is not actively ventilated or extracted. The enclosure is not opened during the activity. Partial segregation with ventilation and filtration of recirculated air. Partial personal enclosure with ventilation
Additional good practice advice beyond the CSA

2.9 Control of workers for: Mixing in batch processes (aerosol): Mixing operations (open systems) [CS30]. Batch process [CS55]. (Process at temperature below 70°C.) (PROC 5)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max < 70°C; indoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Provide extract ventilation to points where emissions occur [E54]. Physical containment or enclosure of the source of emission. The air within the enclosure is not actively ventilated or extracted. The enclosure is not opened during the activity. The material transfer is enclosed with the receiving vessel being docked or sealed to the source vessel.
Additional good practice advice beyond the CSA

2.10 Control of workers for: Mixing in batch processes: Mixing operations (open systems) [CS30]. Batch process [CS55]. (Process at temperature below 70°C.) (PROC 5)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max < 70°C; indoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Provide extract ventilation to points where emissions occur [E54]. Physical containment or enclosure of the source of emission. The air within the enclosure is not actively ventilated or extracted. The enclosure is not opened during the activity. Partial segregation with ventilation and filtration of recirculated air. Partial personal enclosure with ventilation
Additional good practice advice beyond the CSA

2.11 Control of workers for: Transfers of solvents from/to containers. Material transfers [CS3]. Non-dedicated facility [CS82] (Process at temperature below 70°C.) (PROC 8a)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max < 70°C; indoor. goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Provide extract ventilation to material transfer points and other openings [E82]. Chemically resistant gloves (Gloves with available permeation data indicating that the material of construction offers good protection for the substance) with basic employee training in combination with specific activity training (e.g. procedures for glove removal and disposal) for tasks where dermal exposure can be expected to occur. Use suitable eye protection [PPE26].
Additional good practice advice beyond the CSA

2.12 Control of workers for: Equipment cleaning and maintenance. Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82] (Process at temperature below 70°C.) (Process at temperature below 70°C.) (PROC 8a)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
< 15 min per shift; maximum concentration during activity: 5%; temperature max < 70°C; indoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Drain or remove substance from equipment prior to break-in or maintenance [E81]. Limit the substance during the operation to 5%. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Avoid carrying out operation for more than 15 minutes [OC10]. Avoid carrying out activities involving exposure for more than 15 minutes [OC26]. Gloves with available permeation data indicating that the material of construction offers good protection for the substance. Use suitable eye protection [PPE26].
Additional good practice advice beyond the CSA

2.13 Control of workers for: Equipment cleaning and maintenance. Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82] (Process at temperature below 70°C.) (PROC 8a)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
< 15 min per shift; maximum concentration during activity: 5%; temperature max < 70°C; indoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Drain or remove substance from equipment prior to break-in or maintenance [E81]. Limit the substance during the operation to 1%. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Avoid carrying out operation for more than 15 minutes [OC10]. Avoid carrying out activities involving exposure for more than 15 minutes [OC26]. Gloves with available permeation data indicating that the material of construction offers good protection for the substance. Use suitable eye protection [PPE26].
Additional good practice advice beyond the CSA

2.14 Control of workers for: Transfers of solvents or solvent-based products from/to containers. Material transfers [CS3]. Dedicated facility [CS81] (Process at temperature below 70°C.) (PROC 8b)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max < 70°C; indoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Chemically resistant gloves (Gloves with available permeation data indicating that the material of construction offers good protection for the substance) with basic employee training. Use suitable eye protection [PPE26]. Physical containment or enclosure of the source of emission, the air within the enclosure is not actively ventilated or extracted, the enclosure is not opened during the activity; the material transfer is enclosed with the receiving vessel being docked or sealed to the source vessel (for transfert of liquid products). Physical containment or enclosure of the source of emission; the air within the enclosure is not actively ventilated or extracted; the enclosure is not opened during the activity (Handling of contaminated objects). Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29].
Additional good practice advice beyond the CSA

2.15 Control of workers for: Equipment cleaning and maintenance. Equipment cleaning and maintenance [CS39]. (Process at temperature below 70°C.) (PROC 8b)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
< 15 min per shift; maximum concentration during activity: 5%; temperature max < 70°C; indoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Drain or remove substance from equipment prior to break-in or maintenance [E81]. Limit the substance during the operation to 5%. Provide extract ventilation to material transfer points and other openings [E82]. Avoid carrying out operation for more than 15 minutes [OC10]. Avoid carrying out activities involving exposure for more than 15 minutes [OC26].
Additional good practice advice beyond the CSA

2.16 Control of workers for: Disposal of wastes.Disposal of wastes [CS28]. (PROC 8b)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
< 15 min per shift; maximum concentration during activity: 1%; ambient temperature; outdoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Limit the substance content in the product to 1% [OC16]. Ensure operation is undertaken outdoors [E69]. Avoid carrying out operation for more than 15 minutes [OC10]. Avoid carrying out activities involving exposure for more than 15 minutes [OC26].
Additional good practice advice beyond the CSA

2.17 Control of workers for: Roller application or brushing of solvents or solvent-based products. Roller, spreader, flow application [CS98] (Process at temperature below 70°C.) (PROC 10)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max < 70°C; indoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Provide extract ventilation to points where emissions occur [E54]. Gloves with available permeation data indicating that the material of construction offers good protection for the substance. Use suitable eye protection [PPE26]. Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29].
Additional good practice advice beyond the CSA

2.18 Control of workers for: Spraying of solvents or solvent-based products (aerosol). Spraying [CS10]. (Process at temperature below 70°C.) (PROC 11)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max < 70°C; indoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60]. Gloves with available permeation data indicating that the material of construction offers good protection for the substance. Use suitable eye protection [PPE26]. Physical containment or enclosure of the source of emission. The air within the enclosure is not actively ventilated or extracted. The enclosure is not opened during the activity. Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29].
Additional good practice advice beyond the CSA

2.19 Control of workers for: Spraying of solvents or solvent-based products (aerosol). Spraying [CS10]. (Process at temperature below 70°C.) (PROC 11)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max < 70°C; indoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Wear a respirator conforming to EN140 with Type A/P2filter or better {PPE29].
Additional good practice advice beyond the CSA

2.20 Control of workers for: Spraying of solvents or solvent-based products (aerosol). Spraying [CS10]. (Process at temperature below 70°C.) (PROC 11)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max < 70°C; indoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Gloves with available permeation data indicating that the material of construction offers good protection for the substance. Use suitable eye protection [PPE26]. Limit the substance content in the product to 5 %.
Additional good practice advice beyond the CSA

2.21 Control of workers for: Treatment of articles by dipping and pouring. Dipping, immersion and pouring [CS4]. (Process at temperature below 70°C.) (PROC 13)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max < 70°C; indoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60].
Additional good practice advice beyond the CSA

2.22 Control of workers for: Laboratory work: Laboratory activities [CS36]. (Process at temperature below 70°C.) (PROC 15)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max < 70°C; indoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Handle in a fume cupboard or under extract ventilation [E83].
Additional good practice advice beyond the CSA

2.23 Control of workers for: Transfers from/to containers. Material transfers [CS3]. Non-dedicated facility [CS82] (Process at temperature below 40°C.) (PROC 8a)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max 40°C; outdoor, goggles (eye protection); gloves (protection of hands)
Conditions and measures related to personnel protection, hygiene and health evaluation
Ensure operation is undertaken outdoors [E69]. Chemically resistant gloves (Gloves with available permeation data indicating that the material of construction offers good protection for the substance) with basic employee training in combination with specific activity training (e.g. procedures for glove removal and disposal) for tasks where dermal exposure can be expected to occur. Use suitable eye protection [PPE26].
Additional good practice advice beyond the CSA

2.24 Control of workers for: Equipment cleaning and maintenance. Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82] (Process at temperature below 40°C.) (PROC 8a)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
< 15 min per shift; maximum concentration during activity: 5%; temperature max 40°C; outdoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Drain or remove substance from equipment prior to break-in or maintenance [E81]. Limit the substance during the operation to 5%. Ensure operation is undertaken outdoors [E69]. Avoid carrying out operation for more than 15 minutes [OC10]. Avoid carrying out activities involving exposure for more than 15 minutes [OC26]. Wear a respirator conforming to EN140 with Type A/P2filter or better {PPE29]. Gloves with available permeation data indicating that the material of construction offers good protection for the substance. Use suitable eye protection [PPE26].
Additional good practice advice beyond the CSA

2.25 Control of workers for: Equipment cleaning and maintenance. Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82] (Process at temperature below 40°C.) (PROC 8a)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
< 15 min per shift; maximum concentration during activity: 5%; temperature max 40°C; outdoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Drain or remove substance from equipment prior to break-in or maintenance [E81]. Limit the substance during the operation to 5%. Ensure operation is undertaken outdoors [E69]. Avoid carrying out operation for more than 15 minutes [OC10]. Avoid carrying out activities involving exposure for more than 15 minutes [OC26]. Gloves with available permeation data indicating that the material of construction offers good protection for the substance. Use suitable eye protection [PPE26].
Additional good practice advice beyond the CSA

2.26 Control of workers for: Transfers of adhesives from/to containers. Material transfers [CS3]. Dedicated facility [CS81] (Process at temperature below 40°C.) (PROC 8b)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max 40°C; outdoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Ensure operation is undertaken outdoors [E69]. Chemically resistant gloves (Gloves with available permeation data indicating that the material of construction offers good protection for the substance) with basic employee training. Use suitable eye protection [PPE26]. Physical containment or enclosure of the source of emission. The air within the enclosure is not actively ventilated or extracted. The enclosure is not opened during the activity (for activities with open liquid surfaces or open reservoirs).
Additional good practice advice beyond the CSA

2.27 Control of workers for: Equipment cleaning and maintenance. Equipment cleaning and maintenance [CS39]. (Process at temperature below 40°C.) (PROC 8b)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
< 15 min per shift; maximum concentration during activity: 5%; temperature max 40°C; outdoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Drain or remove substance from equipment prior to break-in or maintenance [E81]. Limit the substance during the operation to 5%. Ensure operation is undertaken outdoors [E69]. Avoid carrying out operation for more than 15 minutes [OC10]. Avoid carrying out activities involving exposure for more than 15 minutes [OC26].
Additional good practice advice beyond the CSA

2.28 Control of workers for: Equipment cleaning and maintenance. Equipment cleaning and maintenance [CS39]. (Process at temperature below 40°C.) (PROC 8b)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
< 15 min per shift; maximum concentration during activity: 5%; temperature max 40°C; outdoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Drain or remove substance from equipment prior to break-in or maintenance [E81]. Limit the substance during the operation to 5%. Ensure operation is undertaken outdoors [E69]. Avoid carrying out operation for more than 15 minutes [OC10]. Avoid carrying out activities involving exposure for more than 15 minutes [OC26].
Additional good practice advice beyond the CSA

2.29 Control of workers for: Roller application or brushing of solvents or solvent-based products. Roller, spreader, flow application [CS98] (Process at temperature below 70°C.) (PROC 10)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max < 70°C; outdoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Ensure operation is undertaken outdoors [E69]. Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls [PPE18]. Use suitable eye protection [PPE26]. Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29].
Additional good practice advice beyond the CSA

2.30 Control of workers for: Spraying of solvents or solvent-based products (aerosol). Spraying [CS10]. (Process at temperature below 40°C.) (PROC 11)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max 40°C; outdoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Ensure operation is undertaken outdoors [E69]. Chemically resistant gloves (Gloves with available permeation data indicating that the material of construction offers good protection for the substance) with basic employee training. Use suitable eye protection [PPE26]. Partial segregation with ventilation and filtration of recirculated air. Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29]. Limit the substance content in the product to 10 %.
Additional good practice advice beyond the CSA

2.31 Control of workers for: Spraying of solvents or solvent-based products (aerosol). Spraying [CS10]. (Process at temperature below 40°C.) (PROC 11)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max 40°C; outdoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Ensure operation is undertaken outdoors [E69]. Wear a respirator conforming to EN140 with Type A/P2filter or better [PPE29]. Chemically resistant gloves (Gloves with available permeation data indicating that the material of construction offers good protection for the substance) with basic employee training. Use suitable eye protection [PPE26]. Limit the substance content in the product to 10 %.
Additional good practice advice beyond the CSA

2.32 Control of workers for: Spraying of solvents or solvent-based products (aerosol). Spraying [CS10]. (Process at temperature below 40°C.) (PROC 11)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max 40°C; outdoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Ensure operation is undertaken outdoors [E69]. Wear chemically resistant gloves (tested to type EN374) in combination with intensive management supervision controls [PPE18]. Use suitable eye protection [PPE26]. Limit the substance content in the product to 10 %.
Additional good practice advice beyond the CSA

2.33 Control of workers for: Treatment of articles by dipping and pouring. Dipping, immersion and pouring [CS4]. (Process at temperature below 70°C.) (PROC 13)
Product characteristics
Liquid, vapour pressure 0.5 - 10 kPa [OC4]. Liquid, vapour pressure > 10 kPa [OC5] or CS at temperature above 100°C.
Amount used, frequency and duration of use/exposure
Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
No Limit
Covers daily exposures up to 8 hours (unless stated differently) [G2].
Other operational conditions affecting workers exposure
Assumes activities are at ambient temperature (unless stated differently) [G17]. Assumes a good basic standard of occupational hygiene is implemented [G1].
> 4 hours per shift; maximum concentration during activity: 100%; temperature max < 70°C; outdoor, goggles (eye protection); gloves (protection of hands).
Conditions and measures related to personnel protection, hygiene and health evaluation
Ensure operation is undertaken outdoors [E69]. Chemically resistant gloves (Gloves with available permeation data indicating that the material of construction offers good protection for the substance) with basic employee training in combination with specific activity training (e.g. procedures for glove removal and disposal) for tasks where dermal exposure can be expected to occur. Use suitable eye protection [PPE26]. Physical containment or enclosure of the source of emission. The air within the enclosure is not actively ventilated or extracted. The enclosure is not opened during the activity. Partial segregation with ventilation and filtration of recirculated air. Partial personal enclosure with ventilation
Additional good practice advice beyond the CSA

Exposure estimation and reference to its source
Environment
Use of solvents (Professional Application) 1

Release route	**Release rate**	**Release estimation method**
Water (Sewage)	local release rate: 0.0137 kg/day	SpERC: ESVOC 39
Air	local release rate: 0.0137 kg/day	
Soil	release rate: 0 kg/day	

Protection target	**Exposure estimate (Based on: ECETOC TRA Version 2)[1]**	**PNEC**	**RCR**
Freshwater (pelagic)	1.14E-4 mg/L	0.0088 mg/L	1.30E-2
Freshwater (sediment)	2.95E-2 mg/kg dw	2.27 mg/kg dw	1.30E-2
Marine water (pelagic)	1.01E-5 mg/L	0.00088 mg/L	1.14E-2
Marine water (sediment)	2.60E-3 mg/kg dw	0.227 mg/kg dw	1.15E-2
Sewage treatment plant	2.62E-4 mg/L	6.6mg/L	3.97E-5
Sewage treatment plant (intermittent release)	6.85E-3 mg/L		
Air	7.57E-5 mg/m³		
Agricultural soil	6.46E-4 mg/kg dw	0.45 mg/kg dw	6.22E-3

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RCR = 7.08E-4

Use of solvents (Professional Application) 2

Release route	**Release rate**	**Release estimation method**
Water (Sewage)	local release rate: 2.74E-4 kg/day	SpERC: ESVOC 45
Air	local release rate: 0.027 kg/day	
Soil	release rate: 2.74E-4 kg/day	

Protection target	**Exposure estimate (Based on: ECETOC TRA Version 2)[1]**	**PNEC**	**RCR**
Freshwater (pelagic)	8.88E-5 mg/L	0.0088 mg/L	1.01E-2
Freshwater (sediment)	2.29E-2 mg/kg dw	2.27 mg/kg dw	1.01E-2
Marine water (pelagic)	7.52E-6 mg/L	0.00088 mg/L	8.55E-3
Marine water (sediment)	1.94E-3 mg/kg dw	0.227 mg/kg dw	1.15E-2
Sewage treatment plant	5.23E-6 mg/L	6.6mg/L	7.93E-7
Sewage treatment plant (intermittent release)	1.37E-4 mg/L		
Air	7.39E-5 mg/m³		
Agricultural soil	1.68E-5 mg/kg dw	0.45 mg/kg dw	1.33E-4

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RCR = 7.08E-4

[1] ECETOC TRA version 2 in advanced mode with spERC APPROACH

Use of solvents (Professional Application) 3

Release route	Release rate	Release estimation method
Water (Sewage)	local release rate: 2.74E-4 kg/day	SpERC: ESVOC 6
Air	local release rate: 0.027 kg/day	
Soil	release rate: 2.74E-4 kg/day	

Protection target	Exposure estimate (Based on: ECETOC TRA Version 2)[1]	PNEC	RCR
Freshwater (pelagic)	8.88E-5 mg/L	0.0088 mg/L	1.01E-2
Freshwater (sediment)	2.29E-2 mg/kg dw	2.27 mg/kg dw	1.01E-2
Marine water (pelagic)	7.52E-6 mg/L	0.00088 mg/L	8.54E-3
Marine water (sediment)	1.94E-3 mg/kg dw	0.227 mg/kg dw	8.55E-3
Sewage treatment plant	5.23E-6 mg/L	6.6mg/L	7.93E-7
Sewage treatment plant (intermittent release)	1.37E-4 mg/L		
Air	7.39E-5 mg/m³		
Agricultural soil	1.68E-5 mg/kg dw	0.45 mg/kg dw	1.33E-4

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RCR = 7.08E-4

Use of solvents (Professional Application) 4

Release route	Release rate	Release estimation method
Water (Sewage)	local release rate: 2.74E-4 kg/day	SpERC: ESVOC 9
Air	local release rate: 5.48E-4 kg/day	
Soil	release rate: 0 kg/day	

Protection target	Exposure estimate (Based on: ECETOC TRA Version 2)[1]	PNEC	RCR
Freshwater (pelagic)	8.83E-5 mg/L	0.0088 mg/L	1.00E-2
Freshwater (sediment)	2.28E-2 mg/kg dw	2.27 mg/kg dw	1.00E-2
Marine water (pelagic)	7.46E-6 mg/L	0.00088 mg/L	8.48E-3
Marine water (sediment)	1.93E-3 mg/kg dw	0.227 mg/kg dw	8.49E-3
Sewage treatment plant	5.23E-10 mg/L	6.6mg/L	7.93E-11
Sewage treatment plant (intermittent release)	1.37E-8 mg/L		
Air	7.39E-5 mg/m³		
Agricultural soil	3.99E-6 mg/kg dw	0.45 mg/kg dw	8.88E-6

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RCR = 7.08E-4

[1] ECETOC TRA version 2 in advanced mode with spERC APPROACH

Use of solvents (Professional Application) 5

Release route	Release rate	Release estimation method
Water (Sewage)	local release rate: 1.37E-3 kg/day	SpERC: ESVOC 15
Air	local release rate: 4.11E-3 kg/day	
Soil	release rate: 1.37E-3 kg/day	

Protection target	Exposure estimate (Based on: ECETOC TRA Version 2)[1]	PNEC	RCR
Freshwater (pelagic)	9.09E-5 mg/L	0.0088 mg/L	1.03E-2
Freshwater (sediment)	2.35E-2 mg/kg dw	2.27 mg/kg dw	1.03E-2
Marine water (pelagic)	7.73E-6 mg/L	0.00088 mg/L	8.78E-3
Marine water (sediment)	2.00E-3 mg/kg dw	0.227 mg/kg dw	8.79E-3
Sewage treatment plant	2.62E-5 mg/L	6.6mg/L	3.97E-6
Sewage treatment plant (intermittent release)	6.85E-4 mg/L		
Air	7.41E-5 mg/m³		
Agricultural soil	6.82E-5 mg/kg dw	0.45 mg/kg dw	6.30E-4

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RCR = 7.08E-4

Use of solvents (Professional Application) 6

Release route	Release rate	Release estimation method
Water (Sewage)	local release rate: 1.37E-3 kg/day	SpERC: ESVOC 20
Air	local release rate: 4.11E-3 kg/day	
Soil	release rate: 1.37E-3 kg/day	

Protection target	Exposure estimate (Based on: ECETOC TRA Version 2)[1]	PNEC	RCR
Freshwater (pelagic)	9.09E-5 mg/L	0.0088 mg/L	1.03E-2
Freshwater (sediment)	2.35E-2 mg/kg dw	2.27 mg/kg dw	1.03E-2
Marine water (pelagic)	7.73E-6 mg/L	0.00088 mg/L	8.78E-3
Marine water (sediment)	2.00E-3 mg/kg dw	0.227 mg/kg dw	8.79E-3
Sewage treatment plant	2.62E-5 mg/L	6.6mg/L	7.97E-6
Sewage treatment plant (intermittent release)	6.85E-4 mg/L		
Air	7.41E-5 mg/m³		
Agricultural soil	6.82E-5 mg/kg dw	0.45 mg/kg dw	6.30E-4

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RCR = 7.08E-4

[1] ECETOC TRA version 2 in advanced mode with spERC APPROACH

Use of solvents (Professional Application) 7

Release route	Release rate	Release estimation method
Water (Sewage)	local release rate: 0.0274 kg/day	SpERC: ESVOC 21
Air	local release rate: 0 kg/day	
Soil	release rate: 0 kg/day	

Protection target	Exposure estimate (Based on: ECETOC TRA Version 2)[1]	PNEC	RCR
Freshwater (pelagic)	8.83E-5 mg/L	0.0088 mg/L	1.00E-2
Freshwater (sediment)	2.28E-2 mg/kg dw	2.27 mg/kg dw	1.00E-2
Marine water (pelagic)	7.46E-6 mg/L	0.00088 mg/L	8.48E-3
Marine water (sediment)	1.93E-3 mg/kg dw	0.227 mg/kg dw	8.49E-3
Sewage treatment plant	5.23E-19 mg/L	6.6mg/L	7.93E-20
Sewage treatment plant (intermittent release)	1.37E-17 mg/L		
Air	7.39E-5 mg/m³		
Agricultural soil	3.99E-6 mg/kg dw	0.45 mg/kg dw	8.86E-6

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RCR = 7.08E-

Use of solvents (Professional Application) 8

Release route	Release rate	Release estimation method
Water (Sewage)	local release rate: 6.85E-4 kg/day	SpERC: ESVOC 25
Air	local release rate: 0.026 kg/day	
Soil	release rate: 6.85E-4 kg/day	

Protection target	Exposure estimate (Based on: ECETOC TRA Version 2)[1]	PNEC	RCR
Freshwater (pelagic)	8.96E-5 mg/L	0.0088 mg/L	1.02E-2
Freshwater (sediment)	2.31E-2 mg/kg dw	2.27 mg/kg dw	1.02E-2
Marine water (pelagic)	7.60E-6 mg/L	0.00088 mg/L	8.63E-3
Marine water (sediment)	1.96E-3 mg/kg dw	0.227 mg/kg dw	8.64E-3
Sewage treatment plant	1.31E-5 mg/L	6.6mg/L	1.98E-6
Sewage treatment plant (intermittent release)	3.42E-4 mg/L		
Air	7.40E-5 mg/m³		
Agricultural soil	3.61E-5 mg/kg dw	0.45 mg/kg dw	3.20E-4

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RCR = 7.08E-4

[1] ECETOC TRA version 2 in advanced mode with spERC APPROACH

Use of solvents (Professional Application) 9

Release route	Release rate	Release estimation method
Water (Sewage)	local release rate: 1.1E-3 kg/day	SpERC: ESVOC 26
Air	local release rate: 0.098 kg/day	
Soil	release rate: 9.86E-3 kg/day	

Protection target	Exposure estimate (Based on: ECETOC TRA Version 2)[1]	PNEC	RCR
Freshwater (pelagic)	9.03E-5 mg/L	0.0088 mg/L	1.03E-2
Freshwater (sediment)	2.33E-2 mg/kg dw	2.27 mg/kg dw	1.03E-2
Marine water (pelagic)	7.67E-6 mg/L	0.00088 mg/L	8.72E-3
Marine water (sediment)	1.98E-3 mg/kg dw	0.227 mg/kg dw	8.73E-3
Sewage treatment plant	2.09E-5 mg/L	6.6mg/L	3.17E-6
Sewage treatment plant (intermittent release)	5.48E-4 mg/L		
Air	7.40E-5 mg/m³		
Agricultural soil	5.54E-5 mg/kg dw	0.45 mg/kg dw	5.06E-4

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RCR = 7.08E-4

Use of solvents (Professional Application) 10

Release route	Release rate	Release estimation method
Water (Sewage)	local release rate: 2.74E-4 kg/day	SpERC: ESVOC 14
Air	local release rate: 2.74E kg/day	
Soil	release rate: 2.74E-4 kg/day	

Protection target	Exposure estimate (Based on: ECETOC TRA Version 2)[1]	PNEC	RCR
Freshwater (pelagic)	8.88E-5 mg/L	0.0088 mg/L	1.01E-2
Freshwater (sediment)	2.29E-2 mg/kg dw	2.27 mg/kg dw	1.01E-2
Marine water (pelagic)	7.52E-6 mg/L	0.00088 mg/L	8.54E-3
Marine water (sediment)	1.94E-3 mg/kg dw	0.227 mg/kg dw	8.55E-3
Sewage treatment plant	5.23E-6 mg/L	6.6mg/L	7.93E-7
Sewage treatment plant (intermittent release)	1.37E-4 mg/L		
Air	7.39E-5 mg/m³		
Agricultural soil	1.68E-5 mg/kg dw	0.45 mg/kg dw	1.33E-4

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RCR = 7.08E-4

[1] ECETOC TRA version 2 in advanced mode with spERC APPROACH

Use of solvents (Professional Application) 11

Release route	Release rate	Release estimation method
Water (Sewage)	local release rate: 6.85E-4 kg/day	SpERC: ESVOC 19
Air	local release rate: 1.37E-3 kg/day	
Soil	release rate: 0 kg/day	

Protection target	Exposure estimate (Based on: ECETOC TRA Version 2)[1]	PNEC	RCR
Freshwater (pelagic)	8.96E-5 mg/L	0.0088 mg/L	1.02E-2
Freshwater (sediment)	2.31E-2 mg/kg dw	2.27 mg/kg dw	1.02E-2
Marine water (pelagic)	7.60E-6 mg/L	0.00088 mg/L	8.63E-3
Marine water (sediment)	1.96E-3 mg/kg dw	0.227 mg/kg dw	8.64E-3
Sewage treatment plant	1.31E-5 mg/L	6.6mg/L	1.98E-6
Sewage treatment plant (intermittent release)	3.42E-4 mg/L		
Air	7.40E-5 mg/m³		
Agricultural soil	3.61E-5 mg/kg dw	0.45 mg/kg dw	1.33E-4

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RCR = 7.08E-4

Use of solvents (Professional Application) 12

Release route	Release rate	Release estimation method
Water (Sewage)	local release rate: 2.74E-7 kg/day	SpERC: ESVOC 29
Air	local release rate: 2.74E-5 kg/day	
Soil	release rate: 2.74E-7 kg/day	

Protection target	Exposure estimate (Based on: ECETOC TRA Version 2)[1]	PNEC	RCR
Freshwater (pelagic)	8.83E-5 mg/L	0.0088 mg/L	1.00E-2
Freshwater (sediment)	2.28E-2 mg/kg dw	2.27 mg/kg dw	1.00E-2
Marine water (pelagic)	7.46E-6 mg/L	0.00088 mg/L	8.48E-3
Marine water (sediment)	1.93E-3 mg/kg dw	0.227 mg/kg dw	8.49E-3
Sewage treatment plant	5.23E-9 mg/L	6.6mg/L	7.93E-10
Sewage treatment plant (intermittent release)	1.37E-7 mg/L		
Air	7.39E-5 mg/m³		
Agricultural soil	4.00E-6 mg/kg dw	0.45 mg/kg dw	8.99E-6

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RCR = 7.08E-4

[1] ECETOC TRA version 2 in advanced mode with spERC APPROACH

Use of solvents (Professional Application) 13

Release route	Release rate	Release estimation method
Water (Sewage)	local release rate: 6.85E-4 kg/day	SpERC: ESVOC 32
Air	local release rate: 1.37E-3 kg/day	
Soil	release rate: 6.85E-4 kg/day	

Protection target	Exposure estimate (Based on: ECETOC TRA Version 2)[1]	PNEC	RCR
Freshwater (pelagic)	8.96E-5 mg/L	0.0088 mg/L	1.02E-2
Freshwater (sediment)	2.31E-2 mg/kg dw	2.27 mg/kg dw	1.02E-2
Marine water (pelagic)	7.60E-6 mg/L	0.00088 mg/L	8.63E-3
Marine water (sediment)	1.96E-3 mg/kg dw	0.227 mg/kg dw	8.64E-3
Sewage treatment plant	1.31E-5 mg/L	6.6mg/L	1.98E-6
Sewage treatment plant (intermittent release)	3.42E-4 mg/L		
Air	7.40E-5 mg/m³		
Agricultural soil	3.61E-5 mg/kg dw	0.45 mg/kg dw	3.20E-4

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RCR = 7.08E-4

Use of solvents (Professional Application) 14

Release route	Release rate	Release estimation method
Water (Sewage)	local release rate: 0 kg/day	SpERC: ESVOC 50
Air	local release rate: 0.067 kg/day	
Soil	release rate: 0 kg/day	

Protection target	Exposure estimate (Based on: ECETOC TRA Version 2)[1]	PNEC	RCR
Freshwater (pelagic)	8.83E-5 mg/L	0.0088 mg/L	1.00E-2
Freshwater (sediment)	2.28E-2 mg/kg dw	2.27 mg/kg dw	1.00E-2
Marine water (pelagic)	7.46E-6 mg/L	0.00088 mg/L	8.48E-3
Marine water (sediment)	1.93E-3 mg/kg dw	0.227 mg/kg dw	8.49E-3
Sewage treatment plant	1.27E-15 mg/L	6.6mg/L	1.93E-16
Sewage treatment plant (intermittent release)	3.33E-14 mg/L		
Air	7.39E-5 mg/m³		
Agricultural soil	3.99E-6 mg/kg dw	0.45 mg/kg dw	8.86E-6

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RC

[1] ECETOC TRA version 2 in advanced mode with spERC APPROACH

Use of solvents (Professional Application) 15

Release route	Release rate	Release estimation method
Water (Sewage)	local release rate: 0 kg/day	SpERC: ESVOC 51
Air	local release rate: 1.37E-4 kg/day	
Soil	release rate: 0 kg/day	

Protection target	Exposure estimate (Based on: ECETOC TRA Version 2)[1]	PNEC	RCR
Freshwater (pelagic)	8.83E-5 mg/L	0.0088 mg/L	1.00E-2
Freshwater (sediment)	2.28E-2 mg/kg dw	2.27 mg/kg dw	1.00E-2
Marine water (pelagic)	7.46E-6 mg/L	0.00088 mg/L	8.48E-3
Marine water (sediment)	1.93E-3 mg/kg dw	0.227 mg/kg dw	8.49E-3
Sewage treatment plant	5.23E-19 mg/L	6.6mg/L	7.93E-20
Sewage treatment plant (intermittent release)	1.37E-17 mg/L		
Air	7.39E-5 mg/m³		
Agricultural soil	3.99E-6 mg/kg dw	0.45 mg/kg dw	8.86E-6

Risk characterisation for man via the environment
Local Dose: 0.308 mg/kg*d
Humans via the environment: RCR = 7.08E-4

[1] ECETOC TRA version 2 in advanced mode with spERC APPROACH

Worker exposure
DNEL inhal: 5.98 mg/m³ (long-term systemic effects)
DNEL dermal: 161 µg/cm² (acute - local)

Contributing scenario	Inhalation (long-term systemic)	Dermal (acute - local)	Exposure estimation Method
2.2 Control of workers for: Uses in closed system, no likelihood of exposure (closed systems) [CS107] (Process at temperature below 70°C.) (PROC 1)	**Exposure:** 1,00E-02 ppm **RCR:** 9,47E-03	**Exposure:** 2,50E-02 mg/cm² **RCR:** 1,55E-01	Inhal: ECETOC TRA Derm $_{acute - local}$: ECETOC TRA RMM: see 2. Control of workers
2.3 Control of workers for: Use in closed continuous process: Continuous process [CS54] (closed systems) [CS107] (Process at temperature below 70°C.) (PROC 2)	**Exposure:** 1,70E+00 ppm **RCR**: 2,84E-01	**Exposure:** 9,99E-02mg/cm² **RCR:** 6,21E-01	Inhal: ART Model for inhalatory exposure Derm $_{acute - local}$: ECETOC TRA RMM: see 2. Control workers
2.4 Control of workers for: Use in closed batch process. Mixing operations (closed systems) [CS29].Batch process [CS55]. (Process at temperature below 70°C.) (PROC 3)	**Exposure:** 5,20E+00 ppm **RCR:** 8,60E-01	**Exposure:** 2,50E-02 mg/cm² **RCR:** 1,55E-01	Inhal: ART Model for inhalatory exposure Derm $_{acute - local}$: ECETOC TRA RMM: see 2. Control of workers
2.5 Control of workers for: Use in batch process. Batch process [CS55]. (Process at temperature below 70°C.) (PROC 4)	**Exposure:** 3,50E-01 ppm **RCR:** 5,90E-02	**Exposure:** 5,00E-02 mg/cm² **RCR:** 3,11E-01	Inhal: ART Model for inhalatory exposure Derm $_{acute - local}$: ECETOC TRA RMM: see 2. Control of Workers
2.6 Control of workers for: Use in batch process (aerosol): Batch process [CS55] (Process at temperature below 70°C.) (PROC 4)	**Exposure:** 3,50E-01 ppm **RCR:**5,90E-02	**Exposure:** 5,00E-02 mg/cm² **RCR:** 3,11E-01	Inhal: ART Model for inhalatory exposure DERM $_{acute - local}$: ECETOC TRA RMM: see 2. Control of Workers
2.7 Control of workers for: Use in batch process: Batch process [CS55] (Process at temperature below 70°C.) (PROC 4)	**Exposure:** 3,50E-01 ppm **RCR:**5,90E-02	**Exposure:** 5,00E-02 mg/cm² **RCR:** 3,11E-01	Inhal: ART Model for inhalatory exposure DERM $_{acute - local}$: ECETOC TRA RMM: see 2. Control of workers
2.8 Control of workers for: Mixing in Batch Processes: Mixing operations (open Systems) [CS30]. Batch process [CS55] (Process at temperature below 70°C.) (PROC 5)	**Exposure:** 2,70E-00 ppm **RCR:**4,52E-01	**Exposure:** 5,00E-03 mg/cm² **RCR:** 3,11E-02	Inhal: ART Model for inhalatory exposure DERM $_{acute - local}$: ECETOC TRA RMM: see 2. Control of workers
2.9 Control of workers for: Mixing in Batch Processes (aerosol): Mixing operations (open systems) [CS30]. Batch process [CS55] (Process at temperature below 70°C.) (PROC 5)	**Exposure:** 3,40E-00 ppm **RCR:**5,69E-01	**Exposure:** 5,00E-03 mg/cm² **RCR:** 3,11E-02	Inhal: ART Model for inhalatory exposure DERM $_{acute - local}$: ECETOC TRA RMM: see 2. Control of workers
2.10 Control of workers for: Mixing in Batch Processes): Mixing operations (open systems) [CS30]. Batch process [CS55] (Process at temperature below 70°C.) (PROC 5)	**Exposure:** 2,70E-00 ppm **RCR:**4,52E-01	**Exposure:** 5,00E-03 mg/cm² **RCR:** 3,11E-02	Inhal: ART Model for inhalatory exposure DERM $_{acute - local}$: ECETOC TRA RMM: see 2. Control of workers

Worker exposure
DNEL inhal: 5.98 mg/m³ (long-term systemic effects)
DNEL dermal: 161 µg/cm² (acute - local)

Contributing scenario	Inhalation (long-term systemic)	Dermal (acute - local)	Exposure estimation Method
2.11 Control of workers for: Transfers of Solvents from/to containers. Material transfers [CS3]. Non-dedicated facility [CS82] (Process at temperature below 70°C.) (PROC 8a)	**Exposure:** 4,10E-00 ppm **RCR:**6,86E-01	**Exposure:** 5,00E-02 mg/cm² **RCR:** 3,11E-01	Inhal: ART Model for inhalatory expo Derm $_{acute - local}$: ECETOC TRA RMM: see 2. Control of workers
2.12 Control of workers for: Equipment Cleaning and maintenance. Equipment Cleaning and maintenance [CS39]. Non-Dedicate facility [CS82] (Process at temperature below 70°C.) (PROC 8a)	**Exposure:** 7,00E-01 ppm **RCR**: 6,63E-01	**Exposure:** 4,00E-02mg/cm² **RCR:** 2,48E-01	Inhal:ECETOC TRA Derm $_{acute – local}$: ECETOC TRA RMM: see 2. Control of workers
2.13 Control of workers for: Equipment Cleaning and maintenance. Equipment Cleaning and maintenance [CS39]. Non-dedicated facility [CS 82] (Process at temperature below 70°C.)(PROC 8a)	**Exposure:** 3,60E+00 ppm **RCR:** 6,02E-01	**Exposure:** 4,00E-02 mg/cm² **RCR:** 2,48E-01	Inhal: ART Model for inhalatory exposure Derm $_{acute - local}$: ECETOC TRA RMM: see 2. Control of workers
2.14 Control of workers for: Transfers of Solvents or solvent-based products From/to containers. Material transfers [CS3]. Dedicated facility [CS81] (Process temperature below 70°C.)(PROC 8b)	**Exposure:** 1,80E-01 ppm **RCR:** 3,010E-01	**Exposure:** 5,00E-02 mg/cm² **RCR:** 3,11E-01	Inhal: ART Model for inhalatory exposure Derm $_{acute - local}$: ECETOC TRA RMM: see 2. Control of Workers
2.15 Control of workers for: Equipment Cleaning and maintenance. Equipment Cleaning and maintenance [CS39] (Process at temperature below 70°C.) (PROC 8b)	**Exposure:** 5,00E+00 ppm **RCR:** 4,74E-01	**Exposure:** 9,99E-03 mg/cm² **RCR:** 6,21E-02	Inhal: ECETOC TRA Derm $_{acute - local}$: ECETOC TRA RMM: see 2. Control of workers
2.16 Control of workers for: Disposal Of wastes. Disposal of wastes [CS28]. (Process at temperature below 70°C.) (PROC 8b)	**Exposure:** 3,50E-01 ppm **RCR:**3,32E-01	**Exposure:** 5,00E-02 mg/cm² **RCR:** 3,11E-01	Inhal: ECETOC TRA DERM $_{acute – local}$: ECETOC TRA RMM: see 2. Control of workers
2.17 Control of workers for: Roller Application or brushing of solvents or Solvent-based products. Roller, spreader, Flow application [CS98] (Process at Temperature below 70°C.) (PROC 10)	**Exposure:** 3,10E+00 ppm **RCR:**5,18E-01	**Exposure:** 2,00E-02 mg/cm² **RCR:** 1,24E-01	Inhal: ART Model for inhalatory exposure DERM $_{acute – local}$: ECETOC TRA RMM: see 2. Control of workers
2.18 Control of workers for: Spraying of Solvents or solvent-based products (aerosol). Spraying [CS10]. (Process temperature below 70°C.) (PROC11)	**Exposure:** 1,50E+00 ppm **RCR:**2,50E-01	**Exposure:** 3,13E-02 mg/cm² **RCR:** 1,94E-01	Inhal: ART Model for inhalatory exposure DERM $_{acute – local}$: ECETOC TRA RMM: see 2. Control of workers
2.19 Control of workers for: Spraying of Solvents or solvent-based products (aerosol). Spraying [CS10]. (Process at temperature below 70°C.) (PROC 11)	**Exposure:** 4,00E+00 ppm **RCR:**6,69E-01	**Exposure:** 3,13E-02 mg/cm² **RCR:** 1,94E-01	Inhal: ECETOC TRA DERM $_{acute – local}$: ECETOC TRA RMM: see 2. Control of workers

Worker exposure
DNEL inhal: 5.98 mg/m³ (long-term systemic effects)
DNEL dermal: 161 µg/cm² (acute - local)

Contributing scenario	Inhalation (long-term systemic)	Dermal (acute - local)	Exposure estimation Method
2.20 Control of workers for: Spraying of Solvents or solvent-based products (aerosol). Spraying [CS10]. (Process at temperature below 70°C.) (PROC 11)	**Exposure:** 5,00E+00 ppm **RCR:**8,36E-01	**Exposure:** 3,13E-02 mg/cm² **RCR:** 1,94E-01	Inhal: ART Model for Inhalatory exposure DERM $_{acute-local}$: ECETOC TRA RMM: see 2. Control of workers
2.21 Control of workers for: Treatment of articles by dipping and pouring. Dipping, immersion and pouring [CS4]. (Process at temperature below 70°C.) (PROC 13)	**Exposure:** 2,90E+00 ppm **RCR:**4,52E-02	**Exposure:** 5,00E-02 mg/cm² **RCR:** 3,11E-01	Inhal: ART Model for Inhalatory exposure DERM $_{acute-local}$: ECETOC TRA RMM: see 2. Control of workers
2.22 Control of workers for: Laboratory Work: Laboratory activities [CS36]. (Process at temperature below 70°C.) (PROC 15)	**Exposure:** 4,60E+00 ppm **RCR:**6,86E-02	**Exposure:** 2,50E-03 mg/cm² **RCR:** 1,55E-02	Inhal: ART Model for Inhalatory exposure DERM $_{acute-local}$: ECETOC TRA RMM: see 2. Control of workers
2.23 Control of workers for: Transfers from/to containers. Material transfers [CS3]. Non-dedicated facility [CS82] (Process at temperature below 40°C.) (PROC 8a)	**Exposure:** 3,30E-00 ppm **RCR:** 1,51E-01	**Exposure:** 5,00E-02 mg/cm² **RCR:** 3,11E-01	Inhal: ART Model for inhalatory exposure Derm $_{acute-local}$: ECETOC TRA RMM: see 2. Control of Workers
2.24 Control of workers for: Equipment cleaning and maintenance. Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82] (Process at temperature below 40°C.) (PROC 8a)	**Exposure:** 1,40E-01 ppm **RCR:** 1,33E-01	**Exposure:** 4,00E-02 mg/cm² **RCR:** 2,48E-01	Inhal: ECETOC TRA Derm $_{acute-local}$: ECETOC TRA RMM: see 2. Control of workers
2.25 Control of workers for: Equipment cleaning and maintenance. Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82] (Process at temperature below 40°C.) (PROC 8a)	**Exposure:** 3,30E+00 ppm **RCR:** 9,36E-02	**Exposure:** 4,00E-02 mg/cm² **RCR:** 2,48E-01	Inhal: ART Model for inhalatory exposure Derm $_{acute-local}$: ECETOC TRA RMM: see 2. Control of workers
2.26 Control of workers for: Transfers of adhesives from/to containers. Material transfers [CS3]. Dedicated facility [CS81] (Process at temperature below 40°C.) (PROC 8b)	**Exposure:** 1,50E+01 ppm **RCR:** 2,51E-01	**Exposure:** 5,00E-02 mg/cm² **RCR:** 3,11E-01	Inhal: ART Model for inhalatory exposure Derm $_{acute-local}$: ECETOC TRA RMM: see 2. Control of workers
2.27 Control of workers for: Equipment cleaning and maintenance. Equipment cleaning and maintenance [CS39]. (Process at temperature below 40°C.) (PROC 8b)	**Exposure:** 1,00E-01 ppm **RCR:** 9,47E-02	**Exposure:** 9,99E-02 mg/cm² **RCR:** 6,21E-01	Inhal: ECETOC TRA Derm $_{acute-local}$: ECETOC TRA RMM: see 2. Control of workers
2.28 Control of workers for: Equipment cleaning and maintenance. Equipment cleaning and maintenance [CS39]. (Process at temperature below 40°C.) (PROC 8b)	**Exposure:** 3,30E-00 ppm **RCR:** 9,36E-02	**Exposure:** 9,99E-02 mg/cm² **RCR:** 6,21E-01	Inhal: ART Model for inhalatory exposure Derm $_{acute-local}$: ECETOC TRA RMM: see 2. Control of workers

Worker exposure
DNEL inhal: 5.98 mg/m³ (long-term systemic effects)
DNEL dermal: 161 µg/cm² (acute - local)

Contributing scenario	Inhalation (long-term systemic)	Dermal (acute - local)	Exposure estimation Method
2.29 Control of workers for: Roller application or brushing of solvents or solvent-based products. Roller, spreader, flow application [CS98] (Process at Temperature below 70°C.) (PROC 10)	**Exposure:** 1,20E-01 ppm **RCR:**9,36E-02	**Exposure:** 4,00E-02 mg/cm² **RCR:** 2,48E-01	Inhal: ART Model for inhalatory exposure DERM $_{acute-local}$: ECETOC TRA RMM: see 2. Control of workers
2.30 Control of workers for: Spraying of solvents or solvent-based products (aerosol). Spraying [CS10]. (Process at temperature below 40°C.) (PROC 11)	**Exposure:** 2,70E+00 ppm **RCR:**4,52E-01	**Exposure:** 1,30E-01 mg/cm² **RCR:** 8,04E-01	Inhal: ART Model for Inhalatory exposure DERM $_{acute-local}$: RISKOFDERM Modell RMM: see 2. Control of Workers
2.31 Control of workers for: Spraying of solvents or solvent-based products (aerosol). Spraying [CS10]. (Process at temperature below 40°C.) (PROC 11)	**Exposure:** 2,70E+00 ppm **RCR:**5,02E-01	**Exposure:** 1,30E-01 mg/cm² **RCR:** 8,04E-01	Inhal: ART Model for Inhalatory exposure DERM $_{acute-local}$: RISKOFDERM Modell RMM: see 2. Control of workers
2.32 Control of workers for: Spraying of solvents or solvent-based products (aerosol). Spraying [CS10]. (Process at temperature below 40°C.) (PROC 11)	**Exposure:** 3,00E+00 ppm **RCR:**5,02E-01	**Exposure:** 1,29E-02 mg/cm² **RCR:** 5,82E-01	Inhal: ART Model for Inhalatory exposure DERM $_{acute-local}$: ECETOC TRA RMM: see 2. Control of workers
2.33 Control of workers for: Treatment of articles by dipping and pouring. Dipping, immersion and pouring [CS4]. (Process at temperature below 70°C.) (PROC 13)	**Exposure:** 2,90E-01 ppm **RCR:**4,85E-02	**Exposure:** 5,00E-02 mg/cm² **RCR:** 3,11E-01	Inhal: ART Model for Inhalatory exposure DERM $_{acute-local}$: ECETOC TRA RMM: see 2. Control of workers

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

4.1 Guidance to DU with respect to industrial uses

Comparable situation: DU is obliged to check if the uses of the product at his site are covered by ES49. In case of similar exposure estimates, ES49 is likely to fit. No further action is necessary.

Less product uses: DU uses less amounts of the product and the uses are covered by ES49, no further action is necessary.

Cases not described: Please, contact the supplier for further information.

4.2 Guidance to DU with respect to the environment

Comparable situation: DU is obliged to check whether the environmental conditions at his site are similar and the amount of product used is similar or lower. In case of similar environmental situation and product amounts, ES49 is likely to fit. No further action is necessary.

Dilution higher than in ES49: Safe use is likely, no further action is necessary.

Cases not described: Please, contact the supplier for further information.