Safety Data Sheet
Conforms to Regulation (EC) No. 1907/2006 (REACH), Article 31, Annex II, as amended by Commission Regulation (EU) 2020/878
S45
Date of first edition: 6/14/2021
Safety Data Sheet dated 02/05/2024
version 12

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Mixture identification:

Trade name: S45

Trade code: 28022021

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use: Adhesives/sealants for resilient materials and textiles

Uses advised against: All uses other than recommended ones

1.3. Details of the supplier of the safety data sheet

Company: KERAKOLL S.p.A.
Via dell'Artigianato, 9
41049 Sassuolo (MODENA) - ITALY
Tel.+39 0536 816511 Fax. +39 0536816581
safety@kerakoll.com

1.4. Emergency telephone number

European emergency phone number 112 Kerakoll Italy - +39-0536-816511 Ireland Poison information centre: 01 809 2166 (Daily 8am-10pm) In case of emergency call 999 or 112 Malta In case of emergency call: +356 2395 2000 (24h)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) n. 1272/2008 (CLP)

Flam. Liq. 2	Highly flammable liquid and vapour.
Eye Irrit. 2	Causes serious eye irritation.
STOT SE 3	May cause drowsiness or dizziness.
Aquatic Chronic 2	Toxic to aquatic life with long lasting effects.

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

Regulation (EC) No 1272/2008 (CLP):

Hazard pictograms and Signal Word

Danger

Hazard statements

H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

P102	Keep out of reach of children.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe vapours.

P273	Avoid release to the environment.
P280	Wear protective gloves and eye protection.
P370+P378	In case of fire, use a dry powder fire extinguisher to extinguish.
P501	Dispose of contents/container in accordance with applicable regulations.

Special Provisions:

EUH208	Contains colophony. May produce an allergic reaction.
EUH066	Repeated exposure may cause skin dryness or cracking.

Contains

Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane

Acetone

ethyl acetate

Special provisions according to Annex XVII of REACH and subsequent amendments:

None.

2.3. Other hazards

No PBT, vPvB or endocrine disruptor substances present in concentration >= 0.1%

Other Hazards: No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

N.A.

3.2. Mixtures

Mixture identification: S45

Hazardous components within the meaning of the CLP regulation and related classification:

Qty	Name	Ident. Numb.	Classification	Registration Number
≥20-<50 %	Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane	EC:926-605-8	Flam. Liq. 2, H225; STOT SE 3, H336; Asp. Tox. 1, H304; Aquatic Chronic 2, H411, M-Chronic:1, EUH066, DECLP(*)	01-2119486291-36
≥20-<50 %	Acetone	CAS:67-64-1 EC:200-662-2 Index:606-001-00-8	Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336, EUH066	01-2119471330-49
≥5-<10 %	ethyl acetate	CAS:141-78-6 EC:205-500-4 Index:607-022-00-5	Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336, EUH066	01-2119475103-46
≥0.5-<1 %	colophony	CAS:8050-09-7 EC:232-475-7 Index:650-015-00-7	Skin Sens. 1, H317	01-2119480418-32
≥0.1-<0.3 %	zinc oxide	CAS:1314-13-2 EC:215-222-5 Index:030-013-00-7	Aquatic Acute 1, H400; Aquatic Chronic 1, H410, M-Chronic:1, M-Acute:1	01-2119463881-32

(*)DECLP Substance classified in accordance with Note P, Annex VI of EC Regulation (EC) 1272/2008.

The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.

SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

Immediately take off all contaminated clothing.

Areas of the body that have - or are only even suspected of having - come into contact with the product must be rinsed immediately with plenty of running water and possibly with soap.

Wash thoroughly the body (shower or bath).

Remove contaminated clothing immediatley and dispose off safely.

After contact with skin, wash immediately with soap and plenty of water.

In case of eyes contact:

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an opthalmologist immediately.

Protect uninjured eye.

In case of Ingestion:

Do not induce vomiting, get medical attention showing the SDS and label hazardous.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.

4.2. Most important symptoms and effects, both acute and delayed

Eye irritation

Eye damages

4.3. Indication of any immediate medical attention and special treatment needed

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

CO_2 or Dry chemical fire extinguisher.

Extinguishing media which must not be used for safety reasons:

Water.

5.2. Special hazards arising from the substance or mixture

Do not inhale explosion and combustion gases.

Burning produces heavy smoke.

5.3. Advice for firefighters

Use suitable breathing apparatus .

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Move undamaged containers from immediate hazard area if it can be done safely.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non emergency personnel:

Wear personal protection equipment.

Remove all sources of ignition.

Remove persons to safety.

See protective measures under point 7 and 8.

For emergency responders:

Wear personal protection equipment.

6.2. Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

Retain contaminated washing water and dispose it.

In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

Suitable material for taking up: absorbing material, organic, sand

6.3. Methods and material for containment and cleaning up

Suitable material for taking up: absorbing material, organic, sand

Wash with plenty of water.

6.4. Reference to other sections

See also section 8 and 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid contact with skin and eyes, inhalation of vapours and mists.

Don't use empty container before they have been cleaned.

Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.

Contamined clothing should be changed before entering eating areas.

Do not eat or drink while working.

See also section 8 for recommended protective equipment.

Advice on general occupational hygiene:

7.2. Conditions for safe storage, including any incompatibilities

Store in closed containers and in a well-ventilated place.

Keep away from unguarded flame, sparks, and heat sources. Avoid direct exposure to sunlight.

Incompatible materials:

None in particular.

Instructions as regards storage premises:

Cool and adequately ventilated.

7.3. Specific end use(s)

Recommendation(s)

None in particular

Industrial sector specific solutions:

None in particular

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Community Occupational Exposure Limits (OEL)

	OEL Type	Country	Occupational Exposure Limit
Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane	ACGIH		Long Term: 400 mg/m3 (8h)
Acetone CAS: 67-64-1	NATIONAL	AUSTRALIA	Long Term: 1185 mg/m3 - 500 ppm (8h); Short Term: 2375 mg/m3 - 1000 ppm
	ACGIH		Long Term: 250 ppm (8h); Short Term: 500 ppm A4, BEI - URT and eye irr, CNS impair
	EU		Long Term: 1210 mg/m3 - 500 ppm (8h)
	NATIONAL	AUSTRIA	Long Term: 1200 mg/m3 - 500 ppm; Short Term: 4800 mg/m3 - 2000 ppm 15(Miw), 4x, MAK Source: GKV, BGBl. II Nr. 156/2021
	NATIONAL	BULGARIA	Long Term: 600 mg/m3; Short Term: 1400 mg/m3 Source: НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г.
	NATIONAL	CZECHIA	Long Term: 800 mg/m3; Short Term: Ceiling - 1500 mg/m3 Source: Nařízení vlády č. 361-2007 Sb
	NATIONAL	DENMARK	Long Term: 600 mg/m3 - 250 ppm E Source: BEK nr 2203 af 29/11/2021
	NATIONAL	ESTONIA	Long Term: 1210 mg/m3 - 500 ppm Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
	NATIONAL	FINLAND	Long Term: 1200 mg/m3 - 500 ppm; Short Term: 1500 mg/m3 - 630 ppm Source: HTP-ARVOT 2020
	NATIONAL	FRANCE	Long Term: 1210 mg/m3 - 500 ppm; Short Term: 2420 mg/m3 - 1000 ppm Source: INRS outil65, article R. 4412-149 du Code du travail
	NATIONAL	GREECE	Long Term: 1780 mg/m3; Short Term: 3560 mg/m3 Source: ΦΕΚ 94/Α` 13.5.1999
	NATIONAL	HUNGARY	Long Term: 1210 mg/m3 i, EU[1], N Source: 5/2020. (II. 6.) ITM rendelet
	NATIONAL	LITHUANIA	Long Term: 1210 mg/m3 - 500 ppm; Short Term: 2420 mg/m3 - 1000 ppm Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
	NATIONAL	NETHERLANDS	Long Term: 1210 mg/m3; Short Term: 2420 mg/m3 Source: Arbeidsomstandighedenregeling - Lijst A
	NATIONAL	NORWAY	Long Term: 295 mg/m3 - 125 ppm E Source: FOR-2021-06-28-2248
	NATIONAL	POLAND	Long Term: 600 mg/m3; Short Term: 1800 mg/m3 Source: Dz.U. 2018 poz. 1286
	NATIONAL	SLOVAKIA	Long Term: 1210 mg/m3 - 500 ppm 7) Source: 355 NARIADENIE VLÁDY z 10. mája 2006

	NATIONAL	SWEDEN	Long Term: 600 mg/m3 - 250 ppm; Short Term: 1200 mg/m3 - 500 ppm V Source: AFS 2021:3
	NATIONAL	BELGIUM	Long Term: 594 mg/m3 - 246 ppm; Short Term: 1187 mg/m3 - 492 ppm Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
	NATIONAL	CROATIA	Long Term: 1210 mg/m3 - 500 ppm Source: 2000/39/EZ
	NATIONAL	CYPRUS	Long Term: 1210 mg/m3 - 500 ppm δέρμα Source: Οι περί Ασφάλειας και Υγείας στην Εργασία (Χημικοί Παράγοντες) Κανονισμοί του 2001 έως 2021
	NATIONAL	GERMANY	Long Term: 1200 mg/m3 - 500 ppm AGS, DFG, EU, Y, 2(I) Source: TRGS 900
	NATIONAL	IRELAND	Long Term: 1210 mg/m3 - 500 ppm IOELV Source: 2021 Code of Practice
	NATIONAL	ITALY	Long Term: 1210 mg/m3 - 500 ppm Source: D.lgs. 81/2008, Allegato XXXVIII
	NATIONAL	LATVIA	Long Term: 1210 mg/m3 - 500 ppm Source: KN325P1
	NATIONAL	LUXEMBOURG	Long Term: 1210 mg/m3 - 500 ppm Source: Mémorial A n.226 du 22 mars 2021
	NATIONAL	MALTA	Long Term: 1210 mg/m3 - 500 ppm Source: S.L.424.24
	NATIONAL	PORTUGAL	Long Term: 1210 mg/m3 - 500 ppm Source: Decreto-Lei n.º 1/2021
	NATIONAL	ROMANIA	Long Term: 1210 mg/m3 - 500 ppm Dir. 2000/39 Source: Republicarea 1 - nr. 743 din 29 iulie 2021
	NATIONAL	SLOVENIA	Long Term: 1210 mg/m3 - 500 ppm; Short Term: 2420 mg/m3 - 1000 ppm Y, BAT, EU1 Source: UL št. 72, 11. 5. 2021
	NATIONAL	SPAIN	Long Term: 1210 mg/m3 - 500 ppm VLB®, VLI Source: LEP 2022
ethyl acetate CAS: 141-78-6	NATIONAL	AUSTRIA	Long Term: 734 mg/m3 - 200 ppm; Short Term: 1468 mg/m3 - 400 ppm 15(Miw), 4x, MAK Source: BGBl. II Nr. 156/2021
	NATIONAL	BULGARIA	Long Term: 734 mg/m3 - 200 ppm; Short Term: 1468 mg/m3 - 400 ppm Source: НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г.
	NATIONAL	CZECHIA	Long Term: 700 mg/m3; Short Term: Ceiling - 900 mg/m3 I Source: Nařízení vlády č. 361-2007 Sb
	NATIONAL	DENMARK	Long Term: 540 mg/m3 - 150 ppm E Source: BEK nr 2203 af 29/11/2021
	NATIONAL	ESTONIA	Long Term: 500 mg/m3 - 150 ppm; Short Term: 1100 mg/m3 - 300 ppm Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
	NATIONAL	FINLAND	Long Term: 730 mg/m3 - 200 ppm; Short Term: 1470 mg/m3 - 400 ppm Source: HTP-ARVOT 2020
	NATIONAL	FRANCE	Long Term: 734 mg/m3 - 200 ppm; Short Term: 1468 mg/m3 - 400 ppm Source: INRS outil65, article R. 4412-149 du Code du travail
	NATIONAL	HUNGARY	Long Term: 734 mg/m3; Short Term: 1468 mg/m3 i, sz, EU4, N Source: 5/2020. (II. 6.) ITM rendelet
	NATIONAL	LITHUANIA	Long Term: 500 mg/m3 - 150 ppm; Short Term: Ceiling - 1100 mg/m3 - 300 ppm Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389

	NATIONAL	NETHERLANDS	Long Term: 734 mg/m3; Short Term: 1468 mg/m3 Source: Arbeidsomstandighedenregeling - Lijst A
	NATIONAL	NORWAY	Long Term: 734 mg/m3 - 200 ppm; Short Term: 1468 mg/m3 - 400 ppm E S Source: FOR-2021-06-28-2248
	NATIONAL	POLAND	Long Term: 734 mg/m3; Short Term: 1468 mg/m3 Source: Dz.U. 2018 poz. 1286
	NATIONAL	SLOVAKIA	Long Term: 734 mg/m3 - 200 ppm; Short Term: 1468 mg/m3 - 400 ppm Source: 355 NARIADENIE VLÁDY z 10. mája 2006
	NATIONAL	SWEDEN	Long Term: 550 mg/m3 - 150 ppm; Short Term: 1100 mg/m3 - 300 ppm Source: AFS 2021:3
	NATIONAL	BELGIUM	Long Term: 734 mg/m3 - 200 ppm; Short Term: 1468 mg/m3 - 400 ppm Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
	NATIONAL	CROATIA	Long Term: 734 mg/m3 - 200 ppm; Short Term: 1468 mg/m3 - 400 ppm Source: 2017/164/EU
	NATIONAL	CYPRUS	Long Term: 734 mg/m3 - 200 ppm; Short Term: 1468 mg/m3 - 400 ppm Source: Οι περί Ασφάλειας και Υγείας στην Εργασία (Χημικοί Παράγοντες) Κανονισμοί του 2001 έως 2021
	NATIONAL	GERMANY	Long Term: 730 mg/m3 - 200 ppm DFG, EU, Y, 2(I) Source: TRGS 900
	NATIONAL	GREECE	Long Term: 734 mg/m3 - 200 ppm; Short Term: 1468 mg/m3 - 400 ppm Source: Π.Δ. 82/2018 (ΦΕΚ 152/Α` 21.8.2018)
	NATIONAL	IRELAND	Long Term: 734 mg/m3 - 200 ppm; Short Term: 1468 mg/m3 - 400 ppm IOELV Source: 2021 Code of Practice
	NATIONAL	ITALY	Long Term: 734 mg/m3 - 200 ppm; Short Term: 1468 mg/m3 - 400 ppm Source: D.lgs. 81/2008, Allegato XXXVIII
	NATIONAL	LATVIA	Long Term: 200 mg/m3 - 54 ppm; Short Term: 1468 mg/m3 - 400 ppm Source: KN325P1
	NATIONAL	LUXEMBOURG	Long Term: 734 mg/m3 - 200 ppm; Short Term: 1468 mg/m3 - 400 ppm Source: Mémorial A n.226 du 22 mars 2021
	NATIONAL	MALTA	Long Term: 734 mg/m3 - 200 ppm; Short Term: 1468 mg/m3 - 400 ppm Source: S.L.424.24
	NATIONAL	PORTUGAL	Long Term: 734 mg/m3 - 200 ppm; Short Term: 1468 mg/m3 - 400 ppm Source: Decreto-Lei n.º 1/2021
	NATIONAL	ROMANIA	Long Term: 734 mg/m3 - 200 ppm; Short Term: 1468 mg/m3 - 400 ppm Dir. 2017/164 Source: Republicarea 1 - nr. 743 din 29 iulie 2021
	NATIONAL	SLOVENIA	Long Term: 734 mg/m3 - 200 ppm; Short Term: 1468 mg/m3 - 400 ppm Y, EU4 Source: UL št. 72, 11. 5. 2021
	NATIONAL	SPAIN	Long Term: 734 mg/m3 - 200 ppm; Short Term: 1468 mg/m3 - 400 ppm VLI Source: LEP 2022
colophony CAS: 8050-09-7	NATIONAL	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 0.05 mg/m3 (8h); Short Term: 0.15 mg/m3
	ACGIH		Long Term: 0.001 mg/m3 (8h) I, DSEN, RSEN - Asthma, resp and eye irr, dermal and resp sens
	NATIONAL	CZECHIA	Long Term: 1 mg/m3 S, V Source: Nařízení vlády č. 361-2007 Sb
	NATIONAL	LATVIA	Long Term: 4 mg/m3 Source: KN325P1

	NATIONAL	CROATIA	Long Term: 0.05 mg/m3; Short Term: 0.15 mg/m3 alergen koža Source: NN 1/2021
	NATIONAL	ROMANIA	Long Term: 0.1 mg/m3 Source: Republicarea 1 - nr. 743 din 29 iulie 2021
	NATIONAL	SPAIN	m, Sen Source: LEP 2022
zinc oxide CAS: 1314-13-2	ACGIH		Long Term: 2 mg/m3 (8h); Short Term: 10 mg/m3 R - Metal fume fever
	NATIONAL	AUSTRIA	Long Term: 5 mg/m3 MAK, A Source: BGBl. II Nr. 156/2021
	NATIONAL	BULGARIA	Long Term: 5 mg/m3; Short Term: 10 mg/m3 Source: НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г.
	NATIONAL	CZECHIA	Long Term: 2 mg/m3; Short Term: Ceiling - 5 mg/m3 Source: Nařízení vlády č. 361-2007 Sb
	NATIONAL	DENMARK	Long Term: 4 mg/m3 Source: BEK nr 2203 af 29/11/2021
	NATIONAL	ESTONIA	Long Term: 5 mg/m3 Source: Vabariigi Valitsuse, 20. märtsi 2001. a määrus nr 105
	NATIONAL	FINLAND	Long Term: 2 mg/m3; Short Term: 10 mg/m3 Source: HTP-ARVOT 2020
	NATIONAL	FRANCE	Long Term: 5 mg/m3 Source: INRS outil65
	NATIONAL	FRANCE	Long Term: 10 mg/m3 Source: INRS outil65
	NATIONAL	GREECE	Long Term: 5 mg/m3; Short Term: 10 mg/m3 Source: ΦΕΚ 94/Α` 13.5.1999
	NATIONAL	HUNGARY	Long Term: 5 mg/m3 i, N Source: 5/2020. (II. 6.) ITM rendelet
	NATIONAL	HUNGARY	Long Term: 5 mg/m3 i, R Source: 5/2020. (II. 6.) ITM rendelet
	NATIONAL	LATVIA	Long Term: 0.5 mg/m3 Source: KN325P1
	NATIONAL	LITHUANIA	Long Term: 5 mg/m3 Source: 2011 m. rugsėjo 1 d. Nr. V-824/A1-389
	NATIONAL	NORWAY	Long Term: 5 mg/m3 Source: FOR-2021-06-28-2248
	NATIONAL	POLAND	Long Term: 5 mg/m3; Short Term: 10 mg/m3 4) Source: Dz.U. 2018 poz. 1286
	NATIONAL	SLOVAKIA	Long Term: 1 mg/m3; Short Term: 1 mg/m3 11) Source: 355 NARIADENIE VLÁDY z 10. mája 2006
	NATIONAL	SWEDEN	Long Term: 5 mg/m3 3 Source: AFS 2021:3
	NATIONAL	BELGIUM	Long Term: 2 mg/m3; Short Term: 10 mg/m3 Source: Code du bien-être au travail, Livre VI, Titre 1er, Annexe VI.1-1
	NATIONAL	CROATIA	Long Term: 2 mg/m3; Short Term: 10 mg/m3 GVI: R Source: NN 1/2021
	NATIONAL	IRELAND	Long Term: 2 mg/m3; Short Term: 10 mg/m3 OEL (8-hour reference period) : R Source: 2021 Code of Practice

NATIONAL	ROMANIA	Long Term: 5 mg/m3; Short Term: 10 mg/m3 (Fumuri) Source: Republicarea 1 - nr. 743 din 29 iulie 2021
NATIONAL	SPAIN	Long Term: 2 mg/m3; Short Term: 10 mg/m3 d Source: LEP 2022

Biological limit values

Acetone CAS: 67-64-1	Biological Indicator: Acetone; Sampling Period: End of turn Value: 80 mg/L; Medium: Urine Remark: Not Specific

Predicted No Effect Concentration (PNEC) values

Acetone CAS: 67-64-1	Exposure Route: Fresh Water; PNEC Limit: 10.6 mg/l
	Exposure Route: Intermittent releases (fresh water); PNEC Limit: 21 mg/l
	Exposure Route: Marine water; PNEC Limit: 1.06 mg/l
	Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 100 mg/l
	Exposure Route: Freshwater sediments; PNEC Limit: 30.4 mg/kg
	Exposure Route: Marine water sediments; PNEC Limit: 3.04 mg/kg
	Exposure Route: Soil; PNEC Limit: 29.5 mg/kg
ethyl acetate CAS: 141-78-6	Exposure Route: Fresh Water; PNEC Limit: 240 µg/l
	Exposure Route: Intermittent releases (fresh water); PNEC Limit: 1.65 mg/l
	Exposure Route: Marine water; PNEC Limit: 24 µg/l
	Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 650 mg/l
	Exposure Route: Freshwater sediments; PNEC Limit: 1.15 mg/kg
	Exposure Route: Marine water sediments; PNEC Limit: 115 µg/kg
	Exposure Route: Soil; PNEC Limit: 148 µg/kg
	Exposure Route: Secondary poisoning; PNEC Limit: 200 mg/kg
colophony CAS: 8050-09-7	Exposure Route: Fresh Water; PNEC Limit: 1.6 µg/l
	Exposure Route: Intermittent releases (fresh water); PNEC Limit: 16 µg/l
	Exposure Route: Marine water; PNEC Limit: 160 ng/L
	Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 1000 mg/l
	Exposure Route: Freshwater sediments; PNEC Limit: 7 µg/kg
	Exposure Route: Marine water sediments; PNEC Limit: 0.7 µg/kg
	Exposure Route: Soil; PNEC Limit: 0.45 µg/kg

Derived No Effect Level (DNEL) values

Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane	Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects Worker Professional: 5306 mg/m³; Consumer: 1131 mg/m³
	Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects Worker Professional: 13964 mg/kg; Consumer: 1377 mg/kg
	Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects Consumer: 1301 mg/kg
ethyl acetate CAS: 141-78-6	Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects Worker Professional: 734 mg/m³; Consumer: 367 mg/m³
	Exposure Route: Human Inhalation; Exposure Frequency: Short Term, systemic effects Worker Professional: 1468 mg/m³; Consumer: 734 mg/m³
	Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects Worker Professional: 734 mg/m³; Consumer: 367 mg/m³
	Exposure Route: Human Inhalation; Exposure Frequency: Short Term, local effects Worker Professional: 1468 mg/m³; Consumer: 734 mg/m³
	Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects Worker Professional: 63 mg/kg; Consumer: 37 mg/kg

	Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects Consumer: 4.5 mg/kg
colophony CAS: 8050-09-7	Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects Worker Professional: 2.131 mg/kg; Consumer: 1.065 mg/kg
	Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects Consumer: 1.065 mg/kg

8.2. Exposure controls

Eye protection:

Eye glasses with side protection.

Protection for skin:

Chemical protection clothing. Safety shoes.

Protection for hands:

Neoprene, Nitrile rubber.

Respiratory protection:

Gas filter type AX .

Thermal Hazards:

N.A.

Environmental exposure controls:

N.A.

Hygienic and Technical measures

N.A.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Liquid

Colour: Yellow

Odour: Characteristic

Odour threshold: N.A.

pH: Not Relevant

Kinematic viscosity: > 20,5 mm2/sec (40 °C)

Melting point/freezing point: N.A.

Boiling point or initial boiling point and boiling range: > 36 °C (97 °F)

Flash point: < 23°C

Lower and upper explosion limit: N.A.

Relative vapour density: N.A.

Vapour pressure: N.A.

Density and/or relative density: 0.90 g/cm3

Solubility in water: N.A.

Solubility in oil: N.A.

Partition coefficient n-octanol/water (log value): N.A.

Auto-ignition temperature: N.A.

Decomposition temperature: N.A.

Flammability: The product is classified Flam. Liq. 2 H225

Volatile Organic compounds - VOCs = 76.79 % ; 691.13 g/l

Particle characteristics:

Particle size: N.A.

9.2. Other information

No other relevant information

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions

10.2. Chemical stability

Data not available.

10.3. Possibility of hazardous reactions

Vapors may form explosive mixture with air

10.4. Conditions to avoid

Stable under normal conditions.

10.5. Incompatible materials

Acids; Oxidizers

10.6. Hazardous decomposition products

Develop toxic gases when heated to decomposition.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicological Information of the Preparation

a) acute toxicity	Not classified
	Based on available data, the classification criteria are not met
b) skin corrosion/irritation	Not classified
	Based on available data, the classification criteria are not met
c) serious eye damage/irritation	The product is classified: Eye Irrit. 2(H319)
d) respiratory or skin sensitisation	Not classified
	Based on available data, the classification criteria are not met
e) germ cell mutagenicity	Not classified
	Based on available data, the classification criteria are not met
f) carcinogenicity	Not classified
	Based on available data, the classification criteria are not met
g) reproductive toxicity	Not classified
	Based on available data, the classification criteria are not met
h) STOT-single exposure	The product is classified: STOT SE 3(H336)
i) STOT-repeated exposure	Not classified
	Based on available data, the classification criteria are not met
j) aspiration hazard	Not classified
	Based on available data, the classification criteria are not met

Toxicological information on main components of the mixture:

Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane	a) acute toxicity	LD50 Oral Rat = 25 ml/Kg	
		LC50 Inhalation Rat = 73860 mg/kg	
		LD50 Skin Rat = 5 ml/Kg	
Acetone	a) acute toxicity	LD50 Oral Rat = 5800 mg/kg	
		LC50 Inhalation Vapour Rat = 76 mg/l 4h	
		LD50 Skin Rabbit > 7400 mg/kg 24h	
	b) skin corrosion/irritation	Skin Irritant Rabbit Negative	
	c) serious eye damage/irritation	Eye Irritant Rabbit Yes	
	d) respiratory or skin sensitisation	Skin Sensitization Guineapig Negative	
	f) carcinogenicity	Genotoxicity Negative	Mouse oral route
	g) reproductive toxicity	No Observed Effect Level Oral Rat = 10000 mg/l	
ethyl acetate	a) acute toxicity	LD50 Oral Rat = 5620 mg/kg	
		LC50 Inhalation Vapour Rat > 22.5 mg/l 6h	No mortality occurred
		LD50 Skin Rabbit > 20000 mg/kg 24h	
	b) skin corrosion/irritation	Skin Irritant Rabbit Negative 24h	
	c) serious eye damage/irritation	Eye Irritant Rabbit No	
	d) respiratory or skin sensitisation	Skin Sensitization Guineapig Negative	
	f) carcinogenicity	Genotoxicity Negative	Hamster oral route
	g) reproductive toxicity	No Observed Adverse Effect Level Oral = 13800 mg/kg	Mouse

colophony	a) acute toxicity	LD50 Oral Rat > 2000 mg/kg	
		LD50 Skin Rat > 2000 mg/kg 24h	
	b) skin corrosion/irritation	Skin Irritant Rabbit Negative	
	c) serious eye damage/irritation	Eye Irritant No 6h	
	d) respiratory or skin sensitisation	Skin Sensitization Negative	Mouse
	g) reproductive toxicity	No Observed Adverse Effect Level Oral Rat = 5000	ppm
zinc oxide	a) acute toxicity	LD50 Oral Rat > 5000 mg/kg	
		LC50 Inhalation Rat > 5.7 mg/l 4h	
		LD50 Skin Rat > 2000 mg/kg 24h	
	b) skin corrosion/irritation	Skin Irritant Rabbit Negative	
	c) serious eye damage/irritation	Eye Irritant Rabbit No	
	d) respiratory or skin sensitisation	Skin Sensitization Guineapig Negative	
	f) carcinogenicity	Genotoxicity Negative	
	g) reproductive toxicity	No Observed Adverse Effect Level Oral Rat = 7.2 mg/kg	

11.2. Information on other hazards

Endocrine disrupting properties:

No endocrine disruptor substances present in concentration >= 0.1%

SECTION 12: Ecological information

12.1. Toxicity

Adopt good working practices, so that the product is not released into the environment.

Eco-Toxicological Information:

Toxic to aquatic life with long lasting effects.

List of Eco-Toxicological properties of the product

The product is classified: Aquatic Chronic 2(H411)

List of Eco-Toxicological properties of the components

Component	Ident. Numb.	Ecotox Data
Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane	EINECS: 926-605-8	a) Aquatic acute toxicity : LC50 Fish onocorhynchus mykiss = 12 mg/L 96h
		a) Aquatic acute toxicity : EC50 Daphnia daphinia magna = 3 mg/L 48h
		a) Aquatic acute toxicity : EC50 Algae pseudokirchneriella subcapitata = 55 mg/L 72h
Acetone	CAS: 67-64-1 - EINECS: 200-662-2 - INDEX: 606-001-00-8	a) Aquatic acute toxicity : LC50 Fish Oncorhynchus mykiss = 5540 mg/L 96h OECD 203
		a) Aquatic acute toxicity : LC50 Daphnia Daphnia pulex = 8800 mg/L 48h OECD 202
		b) Aquatic chronic toxicity : NOEC Daphnia Daphnia magna = 2212 mg/L OECD 211 - 28days
		a) Aquatic acute toxicity : NOEC Algae Microcystis aeruginosa = 530 mg/L
		a) Aquatic acute toxicity : NOEC Sludge Activated sludge = 1000 mg/L OECD Guideline 209 - 30min
		d) Terrestrial toxicity : LC50 Worm Eisenia fetida = 0.55 mg/cm2 48h OECD Guideline 207
ethyl acetate	CAS: 141-78-6 - EINECS: 205-500-4 - INDEX: 607-022-00-5	a) Aquatic acute toxicity : LC50 Fish S Gairdneri = 230 mg/L 96h

		b) Aquatic chronic toxicity : NOEC Fish freshwater fish = 6.9 mg/L - 32days
		a) Aquatic acute toxicity : LC50 Daphnia Daphnia Cucullata = 165 mg/L 48h
		b) Aquatic chronic toxicity : NOEC Daphnia daphnia magna = 2.4 mg/L - 21days
		a) Aquatic acute toxicity : EC50 Algae S. subspicatus = 5600 mg/L 48h
		c) Bacteria toxicity : NOEC Pseudomonas putida = 650 mg/L - 16hr
colophony	CAS: 8050-09-7 - EINECS: 232-475-7 - INDEX: 650-015-00-7	a) Aquatic acute toxicity : EL50 Fish Leuciscus idus > 1000 mg/L 96h OECD guideline 203
		a) Aquatic acute toxicity : EL50 Daphnia > 100 mg/L 48h OECD guideline 202
		a) Aquatic acute toxicity : EC50 microorganisms > 10000 mg/L
		a) Aquatic acute toxicity : EL50 Algae > 100 mg/L 48h OECD guideline 201
zinc oxide	CAS: 1314-13-2 - EINECS: 215-222-5 - INDEX: 030-013-00-7	a) Aquatic acute toxicity : LC50 Fish Oncorrhynchus Mykiss = 0.169 mg/L 96h dossier ECHA
		b) Aquatic chronic toxicity : NOEC Fish Cyprinodontidae , Cyprinidae, Salmonidae and Cottidae = 0.044 mg/L dossier ECHA
		a) Aquatic acute toxicity : EC50 Ceriodaphnia dubia = 0.147 mg/L dossier ECHA - neutral/high pH and low hardness
		b) Aquatic chronic toxicity : NOEC aquatic invertebrates = 0.014 mg/L dossier ECHA - 0.014 and 0.400 mg Zn/l
		a) Aquatic acute toxicity : IC50 Algae Selenastrum capricornutum = 0.136 mg/L dossier ECHA - neutral/high pH
		b) Aquatic chronic toxicity : NOEC Algae = 0.06 mg/L dossier ECHA
		c) Bacteria toxicity : NOEC Sludge activated slugde = 100 µg/L dossier ECHA
		d) Terrestrial toxicity : EC10 Worm Lumbricus terrestris = 1634 mg/kg dossier ECHA
		d) Terrestrial toxicity : EC10 Folsomia candida = 14.6 mg/kg dossier ECHA

12.2. Persistence and degradability

Component	Persitence/Degradability:	Test	Value	Notes:
Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane	Readily biodegradable			
Acetone	Readily biodegradable	Biochemical oxigen demand	90.000	
ethyl acetate	Readily biodegradable	CO2 production	94.000	28days

12.3. Bioaccumulative potential

Component	Bioaccumulation	Test	Value	Notes:
Acetone	Bioaccumulative	BCF - Bioconcentrantion factor	3.000	
ethyl acetate	Bioaccumulative	BCF - Bioconcentrantion factor	30.000	aquatic species
colophony	Bioaccumulative	BCF - Bioconcentrantion factor	56.230	L/kg ww.

12.4. Mobility in soil

N.A.

12.5. Results of PBT and vPvB assessment

No PBT or vPvB substances present in concentration >= 0.1%

12.6. Endocrine disrupting properties

No endocrine disruptor substances present in concentration >= 0.1%

12.7. Other adverse effects

N.A.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Recover, if possible. Send to authorised disposal plants or for incineration under controlled conditions. In so doing, comply with the local and national regulations currently in force. Disposal through discharge into wastewater is not permitted

The product disposed of as such, pursuant to Regulation (EU) 1357/2014, must be classified as hazardous waste

A waste code according to the European List of Wastes (LoW) cannot be specified, due to dependence on the usage. Contact an authorized waste disposal service.

SECTION 14: Transport information

14.1. UN number or ID number

1133

14.2. UN proper shipping name

ADR-Shipping Name: ADHESIVES containing flammable liquid

IATA-Technical name: ADHESIVES containing flammable liquid

IMDG-Technical name: ADHESIVES containing flammable liquid

14.3. Transport hazard class(es)

ADR-Class: 3

IATA-Class: 3

IMDG-Class: 3

14.4. Packing group

ADR-Packing Group: II

IATA-Packing group: II

IMDG-Packing group: II

14.5. Environmental hazards

Most important toxic component: Hydrocarbons, C6-C7, isoalkanes, cyclics, <5% n-hexane

Marine pollutant: Yes

Environmental Pollutant: Yes

IMDG-EMS: F-E, S-D

14.6. Special precautions for user

Road and Rail (ADR-RID):

ADR-Label: 3

ADR - Hazard identification number: 33

ADR-Special Provisions: 640D

ADR-Transport category (Tunnel restriction code): 2 (D/E)

ADR Limited Quantities: 5 L

ADR Excepted Quantities: E2

Air (IATA):

IATA-Passenger Aircraft: 353

IATA-Cargo Aircraft: 364

IATA-Label: 3

IATA-Subsidiary hazards: -

IATA-Erg: 3L

IATA-Special Provisions: A3

Sea (IMDG):

IMDG-Stowage Code: Category B

IMDG-Stowage Note: -

IMDG-Subsidiary hazards: -

IMDG-Special Provisions: -

14.7. Maritime transport in bulk according to IMO instruments

N.A.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Dir. 98/24/EC (Risks related to chemical agents at work)

Dir. 2000/39/EC (Occupational exposure limit values)

Regulation (EC) n. 1907/2006 (REACH)

Regulation (EC) n. 1272/2008 (CLP)

Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013

Regulation (EU) n. 286/2011 (ATP 2 CLP)
Regulation (EU) n. 618/2012 (ATP 3 CLP)
Regulation (EU) n. 487/2013 (ATP 4 CLP)
Regulation (EU) n. 944/2013 (ATP 5 CLP)
Regulation (EU) n. 605/2014 (ATP 6 CLP)
Regulation (EU) n. 2015/1221 (ATP 7 CLP)
Regulation (EU) n. 2016/918 (ATP 8 CLP)
Regulation (EU) n. 2016/1179 (ATP 9 CLP)
Regulation (EU) n. 2017/776 (ATP 10 CLP)
Regulation (EU) n. 2018/669 (ATP 11 CLP)
Regulation (EU) n. 2018/1480 (ATP 13 CLP)
Regulation (EU) n. 2019/521 (ATP 12 CLP)
Regulation (EU) n. 2020/217 (ATP 14 CLP)
Regulation (EU) n. 2020/1182 (ATP 15 CLP)
Regulation (EU) n. 2021/643 (ATP 16 CLP)
Regulation (EU) n. 2021/849 (ATP 17 CLP)
Regulation (EU) n. 2022/692 (ATP 18 CLP)
Regulation (EU) n. 2020/878
Regulation (EC) nr 648/2004 (Detergents).

Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:

Restrictions related to the product: 3, 40

Restrictions related to the substances contained: 75

Provisions related to directive EU 2012/18 (Seveso III):

Seveso III category according to Annex 1, part 1	Lower-tier threshold (tonnes)	Upper-tier threshold (tonnes)
Product belongs to category: P5c	5000	50000
Product belongs to category: E2	200	500

Explosives precursors – Regulation 2019/1148

No substances listed

Regulation (EU) No 649/2012 (PIC regulation)

No substances listed

German Water Hazard Class.

Class 2: hazardous for water.

SVHC Substances:

No SVHC substances present in concentration >= 0.1%

Regulation (EU) 2019/1148 concerning the marketing and use of explosives precursors.

ACETONE (CAS 67-64-1): ANNEX II- Regulated explosives precursors.

Substance indicated in section 3.2 included in Annex II (regulated precursor).

This product is regulated by Regulation (EU) 2019/1148: all suspicious transactions and significant disappearances and thefts must be reported to the competent national contact point at

GREAT BRITAIN: Metropolitan Police Service - Tel. 0207 230 9066; Tel. 0207 230 8850; E-mail: Chemical.Reporting@Met.Police.UK

NORTHERN IRELAND: Police Service of Northern Ireland - Tel. 0800 789 321; E-mail: Chemical.reporting@psni.pnn.police.uk

MALTA: Competition and Consumer Affairs Authority - Tel. (+356) 23952000; Fax: (+356) 21242420; E-mail: info@mccaa.org.mt

IRELAND: An Garda Síochána - Phone: +353 1 6661782 (office hours); or Garda 24hr Confidential Line: 1800 666 111; or 999 or 112 (in the event of a serious or imminent threat); Email: Liaisonandprotection_DV@garda.ie

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for the mixture.

Substances for which a Chemical Safety Assessment has been carried out:

Acetone

ethyl acetate

zinc oxide

SECTION 16: Other information

Code	Description
EUH066	Repeated exposure may cause skin dryness or cracking.
H225	Highly flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.

H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

Code	Hazard class and hazard category	Description
2.6/2	Flam. Liq. 2	Flammable liquid, Category 2
3.10/1	Asp. Tox. 1	Aspiration hazard, Category 1
3.3/2	Eye Irrit. 2	Eye irritation, Category 2
3.4.2/1	Skin Sens. 1	Skin Sensitisation, Category 1
3.8/3	STOT SE 3	Specific target organ toxicity — single exposure, Category 3
4.1/A1	Aquatic Acute 1	Acute aquatic hazard, category 1
4.1/C1	Aquatic Chronic 1	Chronic (long term) aquatic hazard, category 1
4.1/C2	Aquatic Chronic 2	Chronic (long term) aquatic hazard, category 2

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Classification according to Regulation (EC) Nr. 1272/2008	Classification procedure
Flam. Liq. 2, H225	On basis of test data
Eye Irrit. 2, H319	Calculation method
STOT SE 3, H336	Calculation method
Aquatic Chronic 2, H411	Calculation method

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities

SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This MSDS cancels and replaces any preceding release.

Legend to abbreviations and acronyms used in the safety data sheet:

ACGIH: American Conference of Governmental Industrial Hygienists

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.

AND: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

ATE: Acute Toxicity Estimate

ATEmix: Acute toxicity Estimate (Mixtures)

BCF: Biological Concentration Factor

BEI: Biological Exposure Index

BOD: Biochemical Oxygen Demand

CAS: Chemical Abstracts Service (division of the American Chemical Society).

CAV: Poison Center

CE: European Community

CLP: Classification, Labeling, Packaging.

CMR: Carcinogenic, Mutagenic and Reprotoxic

COD: Chemical Oxygen Demand

COV: Volatile Organic Compound

CSA: Chemical Safety Assessment

CSR: Chemical Safety Report

DMEL: Derived Minimal Effect Level

DNEL: Derived No Effect Level.

DPD: Dangerous Preparations Directive

DSD: Dangerous Substances Directive

EC50: Half Maximal Effective Concentration

ECHA: European Chemicals Agency

EINECS: European Inventory of Existing Commercial Chemical Substances.

ES: Exposure Scenario

GefStoffVO: Ordinance on Hazardous Substances, Germany.

GHS: Globally Harmonized System of Classification and Labeling of Chemicals.
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association.
IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA).
IC50: half maximal inhibitory concentration
ICAO: International Civil Aviation Organization.
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO).
IMDG: International Maritime Code for Dangerous Goods.
INCI: International Nomenclature of Cosmetic Ingredients.
IRCCS: Scientific Institute for Research, Hospitalization and Health Care
KAFH: Keep Away From Heat
KSt: Explosion coefficient.
LC50: Lethal concentration, for 50 percent of test population.
LD50: Lethal dose, for 50 percent of test population.
LDLo: Leathal Dose Low
N.A.: Not Applicable
N/A: Not Applicable
N/D: Not defined/ Not available
NA: Not available
NIOSH: National Institute for Occupational Safety and Health
NOAEL: No Observed Adverse Effect Level
OSHA: Occupational Safety and Health Administration
PBT: Persistent, Bioaccumulative and Toxic
PGK: Packaging Instruction
PNEC: Predicted No Effect Concentration.
PSG: Passengers
RID: Regulation Concerning the International Transport of Dangerous Goods by Rail.
STEL: Short Term Exposure limit.
STOT: Specific Target Organ Toxicity.
TLV: Threshold Limiting Value.
TWATLV: Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).
vPvB: Very Persistent, Very Bioaccumulative.
WGK: German Water Hazard Class.

Paragraphs modified from the previous revision:

- SECTION 1: Identification of the substance/mixture and of the company/undertaking
- SECTION 2: Hazards identification
- SECTION 3: Composition/information on ingredients
- SECTION 7: Handling and storage
- SECTION 8: Exposure controls/personal protection
- SECTION 9: Physical and chemical properties
- SECTION 10: Stability and reactivity
- SECTION 11: Toxicological information
- SECTION 12: Ecological information
- SECTION 13: Disposal considerations
- SECTION 14: Transport information
- SECTION 15: Regulatory information
- SECTION 16: Other information

Exposure Scenario
Zinc Oxide

Exposure Scenario, 04/07/2022

Substance identity	
	Zinc Oxide
CAS No.	1314-13-2
INDEX No.	030-013-00-7
EINECS No.	215-222-5
Registration number	01-2119463881-32

Table of contents

1. ES 1 Widespread use by professional workers; Various products (PC9a, PC9b)

1.1 TITLE SECTION

Exposure Scenario name	Professional application of coatings and inks - Use in rigid foams, coatings, adhesives and sealants
Date - Version	04/07/2022 - 1.0
Life Cycle Stage	Widespread use by professional workers
Main user group	Professional uses
Sector(s) of use	Professional uses (SU22)
Product Categories	Coatings and paints, thinners, paint removers (PC9a) - Fillers, putties, plasters, modelling clay (PC9b)

Environment Contributing Scenario	
CS1	ERC8a - ERC8d

Worker Contributing Scenario	
CS2 Rolling, Brushing	PROC10
CS3 Rolling, Brushing	PROC10
CS4 Roller, spreader, flow application	PROC11
CS5 Roller, spreader, flow application	PROC11

1.2 Conditions of use affecting exposure

1.2. CS1: Environment Contributing Scenario (ERC8a, ERC8d)

Environmental release categories	Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) - Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8a, ERC8d)

Product (article) characteristics

Physical form of product:

Solid, medium dustiness

Concentration of substance in product:

Covers percentage substance in the product up to 25 %.

Amount used, frequency and duration of use (or from service life)

Amounts used:

Application rate 50 t(onnes)/year

Release type: Intermittent release

Technical and organisational conditions and measures

Control measures to prevent releases

Upgrade of the system in place or additional air treatment measures, such as wet scrubber and/or air filtration and/or thermal oxidation and/or vapour recovery systems, in order to achieve a reduction of the air emissions.	Air - minimum efficiency of: > 50 %

Conditions and measures related to sewage treatment plant

STP type:

Municipal Sewage Treatment Plant

STP effluent (m^3/day): 2000

Conditions and measures related to treatment of waste (including article waste)

Waste treatment
Incineration, disposal or recycling at specific offsite provider

1.2. CS2: Worker Contributing Scenario: Rolling, Brushing (PROC10)

Process Categories	Roller application or brushing (PROC10)

Product (article) characteristics

Physical form of product:
Solid, medium dustiness

Concentration of substance in product:
Covers percentage substance in the product up to 25 %.

Amount used, frequency and duration of use/exposure

Amounts used:
Application rate 50 t(onnes)/year
Application rate 0.15 tonnes/day

Duration:
Covers daily exposures up to 8 hours

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

Personal protection

Wear suitable gloves tested to EN374. Wear suitable face shield. Use suitable eye protection. Provide employee with skin care programmes. Wear suitable respiratory protection.	Dermal - minimum efficiency of: >= 90 %

Other conditions affecting worker exposure

Indoor use
Professional use
Temperature: Assumes process temperature up to .... 25°C

1.2. CS3: Worker Contributing Scenario: Rolling, Brushing (PROC10)

Process Categories	Roller application or brushing (PROC10)

Product (article) characteristics

Physical form of product:
Solid, medium dustiness

Concentration of substance in product:
Covers percentage substance in the product up to 25 %.

Amount used, frequency and duration of use/exposure

Amounts used:
Application rate 50 t(onnes)/year
Application rate 0.15 tonnes/day

Duration:
Covers daily exposures up to 8 hours

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

Personal protection

Wear suitable gloves tested to EN374. Wear suitable face shield. Use suitable eye protection. Provide employee with skin care programmes.	Dermal - minimum efficiency of: >= 90 %

Wear suitable respiratory protection.	

Other conditions affecting worker exposure

Outdoor use
Professional use
Temperature: Assumes process temperature up to .... 25°C

1.2. CS4: Worker Contributing Scenario: Roller, spreader, flow application (PROC11)

Process Categories	Non industrial spraying (PROC11)

Product (article) characteristics

Physical form of product:
Solid, medium dustiness

Concentration of substance in product:
Covers percentage substance in the product up to 25 %.

Amount used, frequency and duration of use/exposure

Amounts used:
Application rate 50 t(onnes)/year
Application rate 0.15 tonnes/day

Duration:
Covers daily exposures up to 8 hours

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

Personal protection

Wear suitable gloves tested to EN374. Wear suitable face shield. Use suitable eye protection. Provide employee with skin care programmes. Wear suitable respiratory protection.	Dermal - minimum efficiency of: >= 90 %

Other conditions affecting worker exposure

Indoor use
Professional use
Temperature: Assumes process temperature up to .... 25°C

1.2. CS5: Worker Contributing Scenario: Roller, spreader, flow application (PROC11)

Process Categories	Non industrial spraying (PROC11)

Product (article) characteristics

Physical form of product:
Solid, medium dustiness

Concentration of substance in product:
Covers percentage substance in the product up to 25 %.

Amount used, frequency and duration of use/exposure

Amounts used:
Application rate 50 t(onnes)/year
Application rate 0.15 tonnes/day

Duration:
Covers daily exposures up to 8 hours

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

Personal protection

Wear suitable gloves tested to EN374. Wear suitable face shield. Use suitable eye protection. Provide employee with skin care programmes. Wear suitable respiratory protection.	Dermal - minimum efficiency of: >= 90 %

Other conditions affecting worker exposure

Outdoor use
Professional use
Temperature: Assumes process temperature up to .... 25°C

1.3 Exposure estimation and reference to its source

1.3. CS2: Worker Contributing Scenario: Rolling, Brushing (PROC10)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic	<= 1.4 mg/day	MEASE	N/A
dermal, systemic	<= 0.12 mg/day	MEASE	N/A
combined routes, systemic	<= 1.5 mg/day	MEASE	<= 0.15

1.3. CS3: Worker Contributing Scenario: Rolling, Brushing (PROC10)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic	<= 6 mg/day	MEASE	N/A
dermal, systemic	<= 0.12 mg/day	MEASE	N/A
combined routes, systemic	<= 6 mg/day	MEASE	<= 0.6

1.3. CS4: Worker Contributing Scenario: Roller, spreader, flow application (PROC11)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic	<= 6 mg/day	MEASE	N/A
dermal, systemic	<= 0.12 mg/day	MEASE	N/A
combined routes, systemic	<= 6 mg/day	MEASE	<= 0.6

1.3. CS5: Worker Contributing Scenario: Roller, spreader, flow application (PROC11)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic	<= 24 mg/day	MEASE	N/A
dermal, systemic	<= 0.12 mg/day	MEASE	N/A

combined routes, systemic	<= 24 mg/day	MEASE	<= 2.4

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

Guidance to check compliance with the exposure scenario:

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Exposure Scenario
Ethyl acetate

Exposure Scenario, 13/07/2021

Substance identity	
	Ethyl acetate
CAS No.	141-78-6
INDEX No.	607-022-00-5
EINECS No.	205-500-4
Registration number	01-2119475103-46

Table of contents

1. ES 1 Widespread use by professional workers; Coatings and paints, thinners, paint removers (PC9a)

1.1 TITLE SECTION

Exposure Scenario name	Professional application of coatings and inks by brush or roller - Handling and dilution of concentrates
Date - Version	13/07/2021 - 1.0
Life Cycle Stage	Widespread use by professional workers
Main user group	Professional uses
Sector(s) of use	Professional uses (SU22)
Product Categories	Coatings and paints, thinners, paint removers (PC9a)

Environment Contributing Scenario

CS1	ERC8a - ERC8d

Worker Contributing Scenario

CS2 Handling and dilution of concentrates	PROC8a
CS3 Handling and dilution of concentrates	PROC10

1.2 Conditions of use affecting exposure

1.2. CS1: Environment Contributing Scenario (ERC8a, ERC8d)

Environmental release categories	Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) - Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8a, ERC8d)

Product (article) characteristics

Physical form of product:
Liquid

Concentration of substance in product:
Covers percentage substance in the product up to 100 %.

1.2. CS2: Worker Contributing Scenario: Handling and dilution of concentrates (PROC8a)

Process Categories	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a)

Product (article) characteristics

Physical form of product:
Liquid

Concentration of substance in product:
Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:
Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

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

Other conditions affecting worker exposure

Indoor use
Professional use
Temperature: Assumes use at not more than 20 °C above ambient temperature.

1.2. CS3: Worker Contributing Scenario: Handling and dilution of concentrates (PROC10)

Process Categories	Roller application or brushing (PROC10)

Product (article) characteristics

Physical form of product:

Liquid

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:

Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Technical and organisational measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Ensure control measures are regularly inspected and maintained.
Provide extract ventilation to points where emissions occur.

Other conditions affecting worker exposure

Indoor use
Professional use
Temperature: Assumes use at not more than 20 °C above ambient temperature.

1.3 Exposure estimation and reference to its source

1.3. CS1: Environment Contributing Scenario (ERC8a, ERC8d)

Release route	Release rate	Release estimation method
Water	0.014 kg/day	N/A
Air	0.666 kg/day	N/A
soil	0 kg/day	N/A

protection target	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
freshwater	= 0.0004036 mg/L	N/A	< 0.01
freshwater sediment	= 0.002 mg/kg KW	N/A	< 0.01
marine sediment	= 0.0003587 mg/kg KW	N/A	< 0.01
Agricultural soil	= 0.000113 mg/kg KW	N/A	< 0.336

1.3. CS2: Worker Contributing Scenario: Handling and dilution of concentrates (PROC8a)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	= 51.39 mg/m³	ECETOC TRA worker v3	= 0.07
inhalative, local, long-term	= 51.39 mg/m³	ECETOC TRA worker v3	= 0.07
dermal, systemic, long-term	= 13.71 mg/kg bw/day	ECETOC TRA worker v3	= 0.218

1.3. CS3: Worker Contributing Scenario: Handling and dilution of concentrates (PROC10)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	= 51.39 mg/m³	ECETOC TRA worker v3	= 0.07
inhalative, local, long-term	= 51.39 mg/m³	ECETOC TRA worker v3	= 0.07
dermal, systemic, long-term	= 27.43 mg/kg bw/day	ECETOC TRA worker v3	= 0.435

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

Guidance to check compliance with the exposure scenario:

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Exposure Scenario
Acetone

Exposure Scenario, 27/08/2021

Substance identity	
	Acetone
CAS No.	67-64-1
INDEX No.	606-001-00-8
EINECS No.	200-662-2
Registration number	01-2119471330-49

Table of contents

1. ES 1 Widespread use by professional workers; Coatings and paints, thinners, paint removers (PC9a)

1.1 TITLE SECTION

Exposure Scenario name	Professional application of coatings and inks
Date - Version	27/08/2021 - 1.0
Life Cycle Stage	Widespread use by professional workers
Main user group	Professional uses
Sector(s) of use	Professional uses (SU22)
Product Categories	Coatings and paints, thinners, paint removers (PC9a)

Environment Contributing Scenario

CS1	ERC8a - ERC8c - ERC8d - ERC8f

Worker Contributing Scenario

CS2 Material transfers	PROC8a
CS3 Rolling, Brushing	PROC10

1.2 Conditions of use affecting exposure

1.2. CS1: Environment Contributing Scenario (ERC8a, ERC8c, ERC8d, ERC8f)

Environmental release categories	Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) - Widespread use leading to inclusion into/onto article (indoor) - Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) - Widespread use leading to inclusion into/onto article (outdoor) (ERC8a, ERC8c, ERC8d, ERC8f)

Product (article) characteristics

Physical form of product:
Liquid, vapour pressure > 10 kPa at STP

Concentration of substance in product:
Covers concentrations up to 70 %

Amount used, frequency and duration of use (or from service life)

Emission days: 365 days per year

Conditions and measures related to treatment of waste (including article waste)

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

Other conditions affecting environmental exposure

Local marine water dilution factor: 100
Local freshwater dilution factor: 10

1.2. CS2: Worker Contributing Scenario: Material transfers (PROC8a)

Process Categories	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a)

Product (article) characteristics

Physical form of product:
Liquid, vapour pressure > 10 kPa at STP

Concentration of substance in product:
Covers concentrations up to 70 %

Amount used, frequency and duration of use/exposure

Duration:

Covers exposure up to 4 h

Technical and organisational conditions and measures

Technical and organisational measures
Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

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

Personal protection
Wear suitable gloves tested to EN374.
Use suitable eye protection.

1.2. CS3: Worker Contributing Scenario: Rolling, Brushing (PROC10)

Process Categories	Roller application or brushing (PROC10)

Product (article) characteristics

Physical form of product:
Liquid, vapour pressure > 10 kPa at STP

Concentration of substance in product:
Covers concentrations up to 70 %

Amount used, frequency and duration of use/exposure

Duration:
Covers exposure up to 4 h

Technical and organisational conditions and measures

Technical and organisational measures
Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

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

Personal protection
Wear suitable gloves tested to EN374.
Use suitable eye protection.

1.3 Exposure estimation and reference to its source

1.3. CS1: Environment Contributing Scenario (ERC8a, ERC8c, ERC8d, ERC8f)

Additional information on exposure estimation:
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

1.3. CS2: Worker Contributing Scenario: Material transfers (PROC8a)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative	N/A	ECETOC TRA worker v2.0	= 0.6
dermal	N/A	ECETOC TRA worker v2.0	= 0.07
combined routes	N/A	ECETOC TRA worker v2.0	= 0.67

1.3. CS3: Worker Contributing Scenario: Rolling, Brushing (PROC10)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative	N/A	ECETOC TRA worker v2.0	= 0.6
dermal	N/A	ECETOC TRA worker v2.0	= 0.15
combined routes	N/A	ECETOC TRA worker v2.0	= 0.75

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

Guidance to check compliance with the exposure scenario:

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.