

JM SP Liquid Flashing TPO and PVC Primer

Version 2.0

Revision Date 03/08/2023

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SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Trade name : JM SP Liquid Flashing TPO and PVC Primer

Manufacturer or supplier's details

Company : Johns Manville
Address : P.O. Box 5108
Denver, CO USA 80217-5108
Telephone : +1-303-978-2000
Emergency telephone : 24-Hour Number: +1-800-424-9300 (CHEMTREC)
number

Company : Johns Manville Canada Inc.
Address : 5301 42 Avenue
Innisfail, AB Canada T4G 1A2
Telephone : +1-303-978-2000
Emergency telephone : 24-Hour Number: +1-800-424-9300 (CHEMTREC)
number

Recommended use of the chemical and restrictions on use

Restrictions on use : For professional users only.
Prepared by : productsafety@jm.com

SECTION 2. HAZARDS IDENTIFICATION**GHS classification in accordance with 29 CFR 1910.1200 and the Hazardous Products Regulations**

Flammable liquids : Category 2
Skin irritation : Category 2
Eye irritation : Category 2A
Skin sensitisation : Category 1
Carcinogenicity (Inhalation) : Category 2
Reproductive toxicity : Category 2
Specific target organ toxicity : Category 3 (Respiratory system, Central nervous system)
- single exposure
Specific target organ toxicity : Category 2
- repeated exposure
Aspiration hazard : Category 1

GHS label elements

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Hazard pictograms

:



Signal word

: Danger

Hazard statements

 : H225 Highly flammable liquid and vapor.
 H304 May be fatal if swallowed and enters airways.
 H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 H319 Causes serious eye irritation.
 H335 May cause respiratory irritation.
 H336 May cause drowsiness or dizziness.
 H351 Suspected of causing cancer if inhaled.
 H361 Suspected of damaging fertility or the unborn child.
 H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

 : **Prevention:**
 P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
 P233 Keep container tightly closed.
 P240 Ground/bond container and receiving equipment.
 P241 Use explosion-proof electrical/ ventilating/ lighting equipment.
 P242 Use only non-sparking tools.
 P243 Take precautionary measures against static discharge.
 P260 Do not breathe mist or vapours.
 P264 Wash skin thoroughly after handling.
 P271 Use only outdoors or in a well-ventilated area.
 P272 Contaminated work clothing must not be allowed out of the workplace.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
 P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
 P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
 P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.
 P331 Do NOT induce vomiting.
 P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
 P337 + P313 If eye irritation persists: Get medical advice/

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attention.

P362 Take off contaminated clothing and wash before reuse.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

P403 + P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

Disposal:

P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature

Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
toluene	108-88-3	>= 30 - < 60
xylenes	1330-20-7	>= 10 - < 30
ethylbenzene	100-41-4	>= 5 - < 10
n-butyl acetate	123-86-4	>= 3 - < 7
4-hydroxy-4-methylpentan-2-one	123-42-2	>= 3 - < 7
cyclohexane	110-82-7	>= 1 - < 5
p-tert-butylphenyl 1-(2,3-epoxy)propyl ether	3101-60-8	>= 0.1 - < 1

Actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

- General advice : Handle in accordance with good industrial hygiene and safety practice.
 Show this safety data sheet to the doctor in attendance.
 Move out of dangerous area.
 Do not leave the victim unattended.
 Symptoms of poisoning may appear several hours later.
- If inhaled : Remove person to fresh air. If signs/symptoms continue, get medical attention.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
 Call a physician if irritation develops or persists.
- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 5 minutes.
 If easy to do, remove contact lens, if worn.
 Protect unharmed eye.
 If eye irritation persists, consult a specialist.

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If swallowed	:	DO NOT induce vomiting unless directed to do so by a physician or poison control center. Gently wipe or rinse the inside of the mouth with water. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician or Poison Control Centre immediately.
Most important symptoms and effects, both acute and delayed	:	May be fatal if swallowed and enters airways. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. May cause respiratory irritation. May cause drowsiness or dizziness. Suspected of causing cancer if inhaled. Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure.
Protection of first-aiders	:	If potential for exposure exists refer to Section 8 for specific personal protective equipment.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Carbon dioxide (CO ₂) Foam Dry powder Water spray
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during firefighting	:	Vapours may form explosive mixtures with air. Vapours are heavier than air and may spread along floors.
Hazardous combustion products	:	carbon oxides nitrogen oxides
Further information	:	Standard procedure for chemical fires. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform

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respective authorities.

Methods and materials for containment and cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
Non-sparking tools should be used.
Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion : Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours).
Use only explosion-proof equipment.
Keep away from open flames, hot surfaces and sources of ignition.
Do not pressurise, cut, weld, braze, solder, drill, or grind on containers.

Advice on safe handling : Avoid formation of aerosol.
Do not breathe vapours/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
Smoking, eating and drinking should be prohibited in the application area.
Take precautionary measures against static discharges.
Provide sufficient air exchange and/or exhaust in work rooms.
Open drum carefully as content may be under pressure.
Dispose of rinse water in accordance with local and national regulations.
Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
For personal protection see section 8.

Conditions for safe storage : No smoking.
Keep containers tightly closed in a dry, cool and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Observe label precautions.
Electrical installations / working materials must comply with the technological safety standards.

Materials to avoid : Keep away from oxidizing agents and strongly acid or alkaline materials.

Recommended storage temperature : 40 - 80 °F / 4 - 27 °C

Storage period : 12 Months

Further information on storage stability : Keep containers tightly closed in a dry, cool and well-ventilated place.
Do not freeze.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
toluene	108-88-3	TWA	20 ppm	ACGIH
		TWA	100 ppm 375 mg/m ³	NIOSH REL
		ST	150 ppm 560 mg/m ³	NIOSH REL
		TWA	200 ppm	OSHA
		CEIL	300 ppm	OSHA
		Peak	500 ppm (10 minutes)	OSHA
xylenes	1330-20-7	TWA	100 ppm 435 mg/m ³	OSHA
		TWA	100 ppm	ACGIH
		STEL	150 ppm	ACGIH
ethylbenzene	100-41-4	TWA	20 ppm	ACGIH
		TWA	100 ppm 435 mg/m ³	NIOSH REL
		ST	125 ppm 545 mg/m ³	NIOSH REL
		TWA	100 ppm 435 mg/m ³	OSHA
n-butyl acetate	123-86-4	TWA	150 ppm 710 mg/m ³	NIOSH REL
		ST	200 ppm 950 mg/m ³	NIOSH REL
		TWA	150 ppm 710 mg/m ³	OSHA
		TWA	50 ppm	ACGIH
		STEL	150 ppm	ACGIH
4-hydroxy-4-methylpentan-2-one	123-42-2	TWA	50 ppm	ACGIH
		TWA	50 ppm 240 mg/m ³	NIOSH REL
		TWA	50 ppm 240 mg/m ³	OSHA
cyclohexane	110-82-7	TWA	100 ppm	ACGIH
		TWA	300 ppm 1,050 mg/m ³	NIOSH REL
		TWA	300 ppm 1,050 mg/m ³	OSHA

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
toluene	108-88-3	Toluene	In blood	Prior to last shift of workweek	0.02 mg/l	ACGIH BEI
		Toluene	Urine	End of	0.03 mg/l	ACGIH

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				shift (As soon as possible after exposure ceases)		BEI
		o-Cresol	Urine	End of shift (As soon as possible after exposure ceases)	0.3 mg/g Creatinine	ACGIH BEI
xylenes	1330-20-7	Methylhippuric acids	Urine	End of shift (As soon as possible after exposure ceases)	1.5 g/g creatinine	ACGIH BEI
ethylbenzene	100-41-4	Sum of mandelic acid and phenyl glyoxylic acid	Urine	End of shift (As soon as possible after exposure ceases)	0.15 g/g creatinine	ACGIH BEI

Engineering measures : Use a local and/or general ventilation system.
Provide exhaust ventilation close to floor level.

Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection
Material : Protective gloves

Remarks : Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).

Eye protection : Wear safety glasses with side shields or goggles.
Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Wear protective clothing, such as long-sleeved shirts and pants.
Remove and wash contaminated clothing before re-use.
Choose body protection in relation to its type, to the

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concentration and amount of dangerous substances, and to the specific work-place.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.
When using do not eat, drink or smoke.
Wash hands before breaks and at the end of workday.
Written instructions for handling must be available at the work place.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid
Colour : light yellow
Odour : aromatic
Odour Threshold : No data available
pH : not determined
Melting point/freezing point : not determined
Initial boiling point and boiling range : > 35 °C
Flash point : 4 °C
Evaporation rate : No data available
Flammability (solid, gas) : Not applicable
Upper explosion limit : 8.1 %(V)
Lower explosion limit : 1.1 %(V)
Vapour pressure : 29 hPa (20 °C)
Relative vapour density : > 2.9(Air = 1.0) Vapors are heavier than air and may travel along the floor and in the bottom of containers.
Relative density : 0.9 (20 °C)
(Water = 1.0)
Density : 0.9 g/cm³ (20 °C)
Solubility(ies)
Water solubility : immiscible
Solubility in other solvents : No data available
Partition coefficient: n-octanol/water : No data available
Auto-ignition temperature : 370 °C
Thermal decomposition : No data available
Viscosity, dynamic : No data available
Viscosity, kinematic : No data available

SECTION 10. STABILITY AND REACTIVITY

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Reactivity	:	Avoid temperatures above 60°C, direct sunlight and contact with sources of heat.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No dangerous reaction known under conditions of normal use. Vapours may form explosive mixture with air. Polymerisation is a highly exothermic reaction and may generate sufficient heat to cause thermal decomposition and/or rupture containers.
Conditions to avoid	:	Avoid temperatures above 60°C, direct sunlight and contact with sources of heat.
Incompatible materials	:	Strong oxidizing agents Strong acids and strong bases Reducing agents halogenated compounds
Hazardous decomposition products	:	Hazardous decomposition products formed under fire conditions.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:

Acute oral toxicity	:	Acute toxicity estimate : > 5,000 mg/kg Method: Calculation method
Acute inhalation toxicity	:	Acute toxicity estimate : > 40 mg/l Exposure time: 4 h Test atmosphere: vapour Method: Calculation method
Acute dermal toxicity	:	Acute toxicity estimate : > 2,000 mg/kg Method: Calculation method

Components:

toluene:

Acute oral toxicity	:	LD50 Oral (Rat, male): 5,580 mg/kg Method: Regulation (EC) No. 440/2008, Annex, B.1 bis GLP: no
Acute inhalation toxicity	:	LC50 (Rat): > 20 mg/l Exposure time: 4 h Test atmosphere: vapour Method: OECD Test Guideline 403 GLP: no
Acute dermal toxicity	:	LD50 (Rabbit): > 5,000 mg/kg GLP: no

xylenes:

Acute oral toxicity	:	LD50 (Rat, male): 3,523 mg/kg Method: EC Directive 92/69/EEC B.1 Acute Toxicity (Oral)
		LD50 (Mouse, female): 5,251 mg/kg Method: EC Directive 92/69/EEC B.1 Acute Toxicity (Oral)

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- LD50 (Mouse, male): 5,627 mg/kg
 Method: EC Directive 92/69/EEC B.1 Acute Toxicity (Oral)
- Acute inhalation toxicity : LC50 (Rat, male): 27.6 mg/l, 6350 ppm
 Exposure time: 4 h
 Test atmosphere: vapour
 Method: Regulation (EC) No. 440/2008, Annex, B.2
 GLP: No information available.
- Acute dermal toxicity : LD50 (Rabbit, male): 12,126 mg/kg
- ethylbenzene:**
- Acute oral toxicity : LD50 (Rat, male and female): ca. 3,500 mg/kg
 Method: standard acute method
 GLP: no
- Acute inhalation toxicity : LC50 (Rat, male): 17.8 mg/l, 4000 ppm
 Exposure time: 4 h
 Test atmosphere: vapour
- Acute dermal toxicity : LD50 (Rabbit, male): ca. 17,800 mg/kg
 Method: standard acute method
 GLP: no
- n-butyl acetate:**
- Acute oral toxicity : LD50 (Rat, female): 10,760 mg/kg
 Method: OECD Test Guideline 423
- Acute inhalation toxicity : LC50 (Rat, male and female): > 20 mg/l
 Exposure time: 4 h
 Test atmosphere: vapour
 Method: Expert judgement
- Acute dermal toxicity : LD50 (Rabbit, male and female): > 14,112 mg/kg
 Method: OECD Test Guideline 402
- 4-hydroxy-4-methylpentan-2-one:**
- Acute oral toxicity : LD50 (Rat, male and female): 3,002 mg/kg
 Method: OECD Test Guideline 401
- Acute inhalation toxicity : LC0 (Rat, male and female): >= 7.6 mg/l
 Exposure time: 4 h
 Test atmosphere: vapour
 Method: OECD Test Guideline 403
- Acute dermal toxicity : LD0 (Rat, male and female): > 1,875 mg/kg
 Method: OECD Test Guideline 402
- cyclohexane:**
- Acute oral toxicity : LD50 (Rat, male and female): > 5,000 mg/kg
 Method: OECD Test Guideline 401
 Remarks: No mortality was observed.
- Acute inhalation toxicity : LC50 (Rat, male and female): > 32.88 mg/l
 Exposure time: 4 h
 Test atmosphere: vapour

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Method: OECD Test Guideline 403

GLP: no

Remarks: No mortality was observed.

Acute dermal toxicity : LD50 (Rabbit, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
Remarks: No mortality was observed.

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Acute oral toxicity : LD50 (Rat, female): > 2,000 mg/kg
Method: OECD Test Guideline 425
Remarks: No mortality was observed.

Acute inhalation toxicity : Assessment: The substance or mixture has no acute
inhalation toxicity
Remarks: Not applicable

Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
Remarks: No mortality was observed.

Skin corrosion/irritation**Components:****toluene:**

Species: Rabbit

Method: Regulation (EC) No. 440/2008, Annex, B.4

Result: Irritating to skin.

Skin corrosion/irritation**xylenes:**

Species: Rabbit

Exposure time: 4 h

Method: Regulation (EC) No. 440/2008, Annex, B.4

Result: Skin irritation

Skin corrosion/irritation**n-butyl acetate:**

Species: Rabbit

Method: OECD Test Guideline 404

Result: No skin irritation

Skin corrosion/irritation**cyclohexane:**

Assessment: Irritating to skin.

Result: Skin irritation

Remarks: Irritating to skin.

Serious eye damage/eye irritation**Components:****toluene:**

Species: Rabbit

Result: No eye irritation

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Method: OECD Test Guideline 405
GLP: yes

Serious eye damage/eye irritation**xylenes:**

Species: Rabbit
Result: Eye irritation

Serious eye damage/eye irritation**n-butyl acetate:**

Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405
GLP: yes

Serious eye damage/eye irritation**4-hydroxy-4-methylpentan-2-one:**

Species: Rabbit
Result: irritating
Method: OECD Test Guideline 405

Serious eye damage/eye irritation**p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:**

Species: Rabbit
Result: No eye irritation
Exposure time: 72 h
Method: OECD Test Guideline 405

Respiratory or skin sensitisation**Components:****toluene:**

Species: Guinea pig
Method: Regulation (EC) No. 440/2008, Annex, B.6
Result: Not a skin sensitizer.
GLP: yes

Respiratory or skin sensitisation**n-butyl acetate:**

Test Type: Maximisation Test
Species: Guinea pig
Result: negative

Respiratory or skin sensitisation**p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:**

Test Type: local lymph node assay (LLNA)
Exposure routes: Intradermal
Species: Mouse
Method: OECD Test Guideline 429
Result: Causes sensitisation.

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Germ cell mutagenicity**Components:****xylenes:**

- Genotoxicity in vitro : Test Type: sister chromatid exchange assay
Test species: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: Regulation (EC) No. 440/2008, Annex, B.19
Result: negative
- : Test Type: Chromosome aberration test in vitro
Test species: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: Regulation (EC) No. 440/2008, Annex, B.10
Result: negative
- Genotoxicity in vivo : Test Type: Chromosome aberration test in vitro
Test species: Mouse (male and female)
Method: OECD Test Guideline 478
Result: negative

Germ cell mutagenicity**n-butyl acetate:**

- Genotoxicity in vitro : Test Type: reverse mutation assay
Test species: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
- Genotoxicity in vivo : Test Type: In vivo micronucleus test
Test species: Mouse (male and female)
Application Route: Oral
Method: OECD Test Guideline 474
Result: negative
GLP: yes
Remarks: Based on data from similar materials

Germ cell mutagenicity**p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:**

- Genotoxicity in vitro : Test Type: reverse mutation assay
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: positive
Remarks: Not classified
- Genotoxicity in vivo : Test Type: comet assay
Test species: Rat (male and female)
Application Route: Oral
Method: OECD Test Guideline 489
Result: negative
Remarks: Not classified

Carcinogenicity**Components:**

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xylenes:

Species: Rat, (male and female)

Application Route: Oral

NOAEL: No observed adverse effect level: 500 mg/kg bw/day

Method: Regulation (EC) No. 440/2008, Annex, B.32

Result: negative

IARC

Group 2B: Possibly carcinogenic to humans

ethylbenzene

100-41-4

OSHA

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA (29 CFR 1910 Subpart Z, Toxic and Hazardous Substances).

NTP

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity
Components:
toluene:

 Reproductive toxicity -
 Assessment

: Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

Reproductive toxicity
xylenes:

Effects on fertility

 : Species: Rat, male and female
 General Toxicity - Parent: No observed adverse effect concentration: 2,171 mg/kg body weight
 General Toxicity F1: No observed adverse effect concentration: 2,171 mg/kg body weight
 Method: OPPTS 870.3800
 Result: No effects on fertility and early embryonic development were detected.

Reproductive toxicity
n-butyl acetate:

Effects on fertility

 : Test Type: Two-generation study
 Species: Rat
 Sex: male and female
 Application Route: inhalation (vapour)
 Group: yes

 Method: OECD Test Guideline 416
 GLP: yes
 Remarks: Fertility and developmental toxicity tests did not reveal any effect on reproduction.

 Effects on foetal
 development

 : Species: Rabbit, male and female
 Strain: NZW

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Application Route: inhalation (vapour)
Dose: 1500 parts per million
Duration of Single Treatment: 30 d
Method: OECD Test Guideline 414
Result: No teratogenic effects
GLP: yes

Reproductive toxicity**4-hydroxy-4-methylpentan-2-one:**

Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

STOT - single exposure**Components:****toluene:**

Assessment: May cause drowsiness or dizziness.

STOT - single exposure**n-butyl acetate:**

Target Organs: Central nervous system
Assessment: May cause drowsiness or dizziness.

STOT - single exposure**4-hydroxy-4-methylpentan-2-one:**

Target Organs: Respiratory Tract
Assessment: May cause respiratory irritation.

STOT - single exposure**cyclohexane:**

Assessment: May cause drowsiness or dizziness.

STOT - repeated exposure**Components:****toluene:**

Assessment: May cause damage to organs through prolonged or repeated exposure.

STOT - repeated exposure**ethylbenzene:**

Exposure routes: Inhalation
Target Organs: hearing organs
Assessment: May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity**Components:****xylenes:**

Species: Rat, male and female
NOAEL: 250 mg/kg
Application Route: Oral

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Species: Rat, female
NOAEL: 150 mg/kg
Application Route: Oral
Method: OECD Test Guideline 408

Species: Rat, male
NOAEL: 750 mg/kg
LOAEL: 150 mg/kg
Application Route: Oral
Method: OECD Test Guideline 408

Species: Dog, male
NOAEL: 3.515 mg/kg
Application Route: inhalation (vapour)
Test atmosphere: vapour

Assessment: The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

n-butyl acetate:

Species: Rat, male and female
NOAEL: 125 mg/kg
LOAEL: 500 mg/kg
Application Route: Oral
Exposure time: 90 d
Group: yes
GLP: yes

Species: Rat, male and female
No observed adverse effect concentration: 500
Application Route: inhalation (vapour)
Test atmosphere: vapour
Exposure time: 90 d
Group: yes
GLP: yes

cyclohexane:

Repeated dose toxicity - : Causes skin irritation.
Assessment

Aspiration toxicity**Components:****toluene:**

May be fatal if swallowed and enters airways.

xylenes:

May be fatal if swallowed and enters airways.

ethylbenzene:

May be fatal if swallowed and enters airways.

cyclohexane:

May be fatal if swallowed and enters airways.

Experience with human exposure**Components:****toluene:**

Skin contact:

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Remarks: Prolonged skin contact may defat the skin and produce dermatitis.

SECTION 12. ECOLOGICAL INFORMATION
Ecotoxicity
Components:
toluene:

- Toxicity to fish : LC50 (Oncorhynchus kisutch (coho salmon)): 5.5 mg/l
 End point: mortality
 Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : LC50: 3.78 mg/l
 End point: mortality
 Exposure time: 48 h
- Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus kisutch (coho salmon)): 1.39 mg/l
 Exposure time: 40 d
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Ceriodaphnia dubia): 0.74 mg/l
 Exposure time: 7 d
- Toxicity to microorganisms : EC50: 84 mg/l
 Exposure time: 24 h

xylenes:

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 2.6 mg/l
 Exposure time: 96 h
 Method: OECD Test Guideline 203
- Toxicity to algae/aquatic plants : EC50: 4.36 mg/l
 Exposure time: 72 h
- Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): > 1.3 mg/l
 Exposure time: 56 d
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Ceriodaphnia dubia): 0.96 mg/l
 Exposure time: 7 d

Ecotoxicology Assessment

- Acute aquatic toxicity : This product has no known ecotoxicological effects.
- Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

ethylbenzene:

- Toxicity to fish : LC50 (Menidia menidia (Atlantic silverside)): 5.1 mg/l
 End point: mortality
 Exposure time: 96 h
 GLP: yes
- Toxicity to daphnia and other : LC50 (Americamysis): 2.6 mg/l

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aquatic invertebrates	:	End point: mortality Exposure time: 96 h GLP: yes
Toxicity to algae/aquatic plants	:	EC50 (Raphidocelis subcapitata (freshwater green alga)): 3.6 mg/l Exposure time: 96 h Test Type: static test GLP: yes
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Ceriodaphnia dubia): 1 mg/l Exposure time: 7 d Test Type: semi-static test GLP: no
n-butyl acetate:		
Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 18 mg/l End point: mortality Exposure time: 96 h Test Type: flow-through test Analytical monitoring: yes Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 44 mg/l End point: Immobilization Exposure time: 48 h Test Type: static test Analytical monitoring: no Method: OECD Test Guideline 202 GLP: no
Toxicity to algae/aquatic plants	:	NOEC (Raphidocelis subcapitata (freshwater green alga)): 105 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 23.2 mg/l Exposure time: 21 d Test Type: semi-static test Analytical monitoring: yes Method: OECD Test Guideline 211 GLP: yes Remarks: Based on data from similar materials
Toxicity to microorganisms	:	IC50 (Tetrahymena pyriformis): 356 mg/l End point: Growth rate Exposure time: 40 h Test Type: static test Analytical monitoring: no

Ecotoxicology Assessment

Acute aquatic toxicity : This product has no known ecotoxicological effects.

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Chronic aquatic toxicity : This product has no known ecotoxicological effects.

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): ca. 7.5 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 67.9 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Raphidocelis subcapitata (freshwater green alga)): ca. 9 mg/l
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201

Persistence and degradability**Components:****toluene:**

Biodegradability : Result: Readily biodegradable.
Remarks: Readily biodegradable, according to appropriate OECD test.

xylenes:

Biodegradability : Result: Readily biodegradable.
Biodegradation: > 90 %
Exposure time: 28 d

ethylbenzene:

Biodegradability : Result: Readily biodegradable.

n-butyl acetate:

Biodegradability : aerobic
Result: Readily biodegradable.
Biodegradation: 83 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Biodegradability : aerobic
Inoculum: activated sludge, non-adapted
Result: Not biodegradable
Biodegradation: 1.1 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

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Bioaccumulative potential

Components:

toluene:

Partition coefficient: n-octanol/water : Pow: 2.73 (68 °F / 20 °C)
pH: 7

xylenes:

Bioaccumulation : Bioconcentration factor (BCF): 25.9

Partition coefficient: n-octanol/water : log Pow: 3.16 (68 °F / 20 °C)
pH: 7

ethylbenzene:

Bioaccumulation : Bioconcentration factor (BCF): 110

Partition coefficient: n-octanol/water : log Pow: 3.6 (68 °F / 20 °C)
pH: 7.84
Method: Regulation (EC) No. 440/2008, Annex, A.8
GLP: yes

n-butyl acetate:

Bioaccumulation : Bioconcentration factor (BCF): 15

Partition coefficient: n-octanol/water : log Pow: 2.3 (77 °F / 25 °C)
pH: 7
Method: OECD Test Guideline 117
GLP: yes

4-hydroxy-4-methylpentan-2-one:

Partition coefficient: n-octanol/water : log Pow: ca. -0.09
Remarks: The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Partition coefficient: n-octanol/water : log Pow: ca. 3.59 (68 °F / 20 °C)
pH: 7
Method: OECD Test Guideline 107

Mobility in soil

Components:

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Distribution among environmental compartments : Koc: ca. 755, log Koc: 2.88
Method: OECD Test Guideline 121

Other adverse effects

Product:

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82

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Protection of Stratospheric Ozone - CAA Section 602 Class I Substances

Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : Toxic to aquatic life.
Harmful to aquatic life with long lasting effects.

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : Dispose of contents/ container to an approved facility in accordance with local, regional, national and international regulations.
The product should not be allowed to enter drains, water courses or the soil.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14. TRANSPORT INFORMATION**International transport regulations**

Land transport

USDOT: UN1263, Paint, 3, II

TDG: UN1263, Paint, 3, II

LIMITED QUANTITY if shipped in inner packagings not over 5.0 L (1.3 gallons) net capacity each, packed in a strong outer packaging.

Sea transport

IMDG: UN1263, Paint, 3, II (4 °C c.c.)

Air transport

IATA/ICAO: UN1263, Paint, 3, II

SECTION 15. REGULATORY INFORMATION**TSCA list**

TSCA - 5(a) Significant New Use Rule List of Chemicals : No substances are subject to a Significant New Use Rule.

U.S. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpart D) : No substances are subject to TSCA 12(b) export notification requirements.

EPCRA - Emergency Planning and Community Right-to-Know Act

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CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
xylene	1330-20-7	100	344

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
chloroform	67-66-3	10	> 10000

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)
 Respiratory or skin sensitisation
 Carcinogenicity
 Reproductive toxicity
 Specific target organ toxicity (single or repeated exposure)
 Aspiration hazard
 Skin corrosion or irritation
 Serious eye damage or eye irritation

SARA 302 : This material does not contain any components with a section 302 EHS TPQ.

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

toluene	108-88-3	30 - 60 %
xylenes	1330-20-7	10 - 30 %
ethylbenzene	100-41-4	5 - 10 %
cyclohexane	110-82-7	1 - 5 %

Clean Air Act

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):

toluene	108-88-3	30 - 60 %
xylenes	1330-20-7	10 - 30 %
ethylbenzene	100-41-4	5 - 10 %

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

toluene	108-88-3	30 - 60 %
xylenes	1330-20-7	10 - 30 %
ethylbenzene	100-41-4	5 - 10 %
n-butyl acetate	123-86-4	3 - 7 %
4-hydroxy-4-methylpentan-2-one	123-42-2	3 - 7 %
cyclohexane	110-82-7	1 - 5 %

California Prop. 65

⚠️ WARNING: This product can expose you to chemicals including chloroform, which is/are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

The components of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

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DSL : On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION
Further information

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Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
 ACGIH BEI : ACGIH - Biological Exposure Indices (BEI)
 NIOSH REL : USA. NIOSH Recommended Exposure Limits
 OSHA : USA. Occupational Exposure Limits (OSHA) - Table Z-1
 Limits for Air Contaminants
 OSHA : USA. Occupational Exposure Limits (OSHA) - Table Z-2
 ACGIH / TWA : 8-hour, time-weighted average
 ACGIH / STEL : Short-term exposure limit
 NIOSH REL / TWA : Time-weighted average concentration for up to a 10-hour
 workday during a 40-hour workweek
 NIOSH REL / ST : STEL - 15-minute TWA exposure that should not be exceeded
 at any time during a workday
 OSHA / TWA : 8-hour time weighted average
 OSHA / TWA : 8-hour time weighted average
 OSHA / CEIL : Acceptable ceiling concentration
 OSHA / Peak : Acceptable maximum peak above the acceptable ceiling
 concentration for an 8-hr shift

AIIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of
 Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response,
 Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN -
 Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL -
 Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS -
 Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS -
 Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx -
 Concentration associated with x% growth rate response; ERG - Emergency Response Guide;
 GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous
 Materials Identification System; IARC - International Agency for Research on Cancer; IATA -
 International Air Transport Association; IBC - International Code for the Construction and
 Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory
 concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing
 Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO -
 International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO -
 International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 -
 Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population
 (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from
 Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA -
 National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration;
 NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate;
 NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD -
 Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety
 and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS -
 Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure
 Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation
 (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration,
 Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-

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Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.