

Dichlofenthion Formulation

Version Revision Date: SDS Number: Date of last issue: 04/09/2022
7.2 10/01/2022 1552609-00013 Date of first issue: 04/14/2017

SECTION 1. IDENTIFICATION

Product name : Dichlofenthion Formulation
Other means of identification : No data available

Manufacturer or supplier's details

Company name of supplier : Merck & Co., Inc
Address : 126 E. Lincoln Avenue
 : Rahway, New Jersey U.S.A. 07065
Telephone : 908-740-4000
Emergency telephone : 1-908-423-6000
E-mail address : EHSDATASTEWARD@merck.com

Recommended use of the chemical and restrictions on use

Recommended use : Veterinary product

Restrictions on use : Not applicable

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations

Flammable liquids : Category 3

Acute toxicity (Oral) : Category 4

Skin corrosion : Category 1B

Serious eye damage : Category 1

Skin sensitization : Category 1

Germ cell mutagenicity : Category 2

Carcinogenicity (Oral) : Category 1A

Reproductive toxicity : Category 2

Specific target organ toxicity : Category 1 (Nervous system)
- single exposure

Specific target organ toxicity : Category 3
- single exposure

Specific target organ toxicity : Category 1 (Nervous system)
- repeated exposure





Specific target organ toxicity : Category 2 (Central nervous system, Kidney, Liver, Skin, Res-
- repeated exposure piratory Tract, Auditory system)

Aspiration hazard : Category 1

GHS label elements

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- Hazard pictograms :    
- Signal Word : Danger
- Hazard Statements : H226 Flammable liquid and vapor.
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation.
H341 Suspected of causing genetic defects.
H350 May cause cancer if swallowed.
H361d Suspected of damaging the unborn child.
H370 Causes damage to organs (Nervous system).
H372 Causes damage to organs (Nervous system) through prolonged or repeated exposure.
H373 May cause damage to organs (Central nervous system, Kidney, Liver, Skin, Respiratory Tract, Auditory system) 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, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 Do not breathe vapors.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves, protective clothing, eye protection and face protection.
- Response:**
P301 + P330 + P331 + P310 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER.
P303 + P361 + P353 + P310 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Immediately call a POISON CENTER.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER.
P308 + P311 IF exposed or concerned: Call a doctor.
P333 + P313 If skin irritation or rash occurs: Get medical attention.

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P362 + P364 Take off contaminated clothing and wash it before reuse.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents and container to an approved waste disposal plant.

Other hazards

Vapors may form explosive mixture with air.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	Common Name/Synonym	CAS-No.	Concentration (% w/w)
Tar, wood	No data available	91722-33-7	>= 10 - < 30 *
Rosin	No data available	8050-09-7	>= 10 - < 30 *
Tar, coal	No data available	8007-45-2	>= 10 - < 30 *
Ethylbenzene	Benzene, ethyl-	100-41-4	>= 5 - < 10 *
Xylene	Benzene, dimethyl-	1330-20-7	>= 5 - < 10 *
Dichlofenthion (ISO)	No data available	97-17-6	>= 1 - < 5 *
Sodium hydroxide	Caustic soda	1310-73-2	>= 2 - < 5 *
Phenol	Monohydroxybenzene	108-95-2	>= 1 - < 3 *
m-Cresol	Phenol, 3-methyl-	108-39-4	>= 1 - < 5 *
p-Cresol	Phenol, 4-methyl-	106-44-5	>= 1 - < 5 *

* Actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
 When symptoms persist or in all cases of doubt seek medical advice.
- If inhaled : If inhaled, remove to fresh air.
 If not breathing, give artificial respiration.
 If breathing is difficult, give oxygen.
 Get medical attention immediately.
- 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

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		and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.
In case of eye contact	:	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lens, if worn. Get medical attention immediately.
If swallowed	:	If swallowed, DO NOT induce vomiting. If vomiting occurs have person lean forward. Call a physician or poison control center immediately. Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person.
Most important symptoms and effects, both acute and delayed	:	Harmful if swallowed. May be fatal if swallowed and enters airways. May cause an allergic skin reaction. Causes serious eye damage. May cause respiratory irritation. Suspected of causing genetic defects. May cause cancer if swallowed. Suspected of damaging the unborn child. Causes damage to organs. Causes damage to organs through prolonged or repeated exposure. Causes severe burns. Causes digestive tract burns.
Protection of first-aiders	:	First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).
Notes to physician	:	Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Carbon dioxide (CO ₂) Dry chemical
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during fire fighting	:	Do not use a solid water stream as it may scatter and spread fire. Flash back possible over considerable distance. Vapors may form explosive mixtures with air. Exposure to combustion products may be a hazard to health.
Hazardous combustion products	:	Carbon oxides Metal oxides Nitrogen oxides (NO _x)
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.

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Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Remove all sources of ignition. Use personal protective equipment. Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

Environmental precautions : Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g., by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up : Non-sparking tools should be used. Soak up with inert absorbent material. Suppress (knock down) gases/vapors/mists with a water spray jet. For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation : If sufficient ventilation is unavailable, use with local exhaust ventilation. Use explosion-proof electrical, ventilating and lighting equipment.

Advice on safe handling : Do not get on skin or clothing. Do not breathe vapors. Do not swallow. Do not get in eyes. Wash skin thoroughly after handling. Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment. Non-sparking tools should be used. Keep container tightly closed. Already sensitized individuals, and those susceptible

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- to asthma, allergies, chronic or recurrent respiratory disease, should consult their physician regarding working with respiratory irritants or sensitizers.
 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 Take precautionary measures against static discharges.
 Do not eat, drink or smoke when using this product.
 Take care to prevent spills, waste and minimize release to the environment.
- Conditions for safe storage : Keep in properly labeled containers.
 Store locked up.
 Keep tightly closed.
 Keep in a cool, well-ventilated place.
 Store in accordance with the particular national regulations.
 Keep away from heat and sources of ignition.
- Materials to avoid : Do not store with the following product types:
 Strong oxidizing agents
 Self-reactive substances and mixtures
 Organic peroxides
 Flammable solids
 Pyrophoric liquids
 Pyrophoric solids
 Self-heating substances and mixtures
 Substances and mixtures which in contact with water emit flammable gases
 Explosives
 Gases
 Very acutely toxic substances and mixtures

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Rosin	8050-09-7	TWA (Inhalable particulate matter)	0.001 mg/m ³ (total Resin acids)	ACGIH
Tar, coal	8007-45-2	TWA	0.15 mg/m ³	CA ON OEL
Ethylbenzene	100-41-4	STEL	125 ppm 543 mg/m ³	CA AB OEL
		TWA	100 ppm 434 mg/m ³	CA AB OEL
		TWA	20 ppm	CA BC OEL
		TWAEV	20 ppm	CA QC OEL
		TWA	20 ppm	ACGIH
Xylene	1330-20-7	TWA	100 ppm 434 mg/m ³	CA AB OEL
		STEL	150 ppm 651 mg/m ³	CA AB OEL
		TWAEV	100 ppm 434 mg/m ³	CA QC OEL

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		STEV	150 ppm 651 mg/m ³	CA QC OEL
		TWA	100 ppm	CA BC OEL
		STEL	150 ppm	CA BC OEL
		TWA	20 ppm	ACGIH
Dichlofenthion (ISO)	97-17-6	TWA	20 µg/m ³ (OEB 3)	Internal
Further information: Skin				
		Wipe limit	200 µg/100 cm ²	Internal
Sodium hydroxide	1310-73-2	(c)	2 mg/m ³	CA AB OEL
		C	2 mg/m ³	CA BC OEL
		C	2 mg/m ³	CA QC OEL
		C	2 mg/m ³	ACGIH
Phenol	108-95-2	TWA	5 ppm 19 mg/m ³	CA AB OEL
		TWA	5 ppm	CA BC OEL
		TWAEV	5 ppm 19 mg/m ³	CA QC OEL
		TWA	5 ppm	ACGIH
m-Cresol	108-39-4	TWA	5 ppm 22 mg/m ³	CA AB OEL
		TWAEV (inhalable fraction and vapour)	20 mg/m ³	CA QC OEL
		TWA	10 mg/m ³	CA BC OEL
		TWA (Inhalable fraction and vapor)	20 mg/m ³	ACGIH
p-Cresol	106-44-5	TWA	5 ppm 22 mg/m ³	CA AB OEL
		TWAEV (inhalable fraction and vapour)	20 mg/m ³	CA QC OEL
		TWA	10 mg/m ³	CA BC OEL
		TWA (Inhalable fraction and vapor)	20 mg/m ³	ACGIH

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Phenol	108-95-2	Phenol	Urine	End of shift (As soon as possible after exposure ceases)	250 mg/g Creatinine	ACGIH BEI
Xylene	1330-20-7	Methylhippu	Urine	End of	1.5 g/g	ACGIH

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		ric acids		shift (As soon as possible after exposure ceases)	creatinine	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 appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., drip-less quick connections).
 All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.
 Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of the compound to uncontrolled areas (e.g., open-face containment devices).
 Minimize open handling.
 Use explosion-proof electrical, ventilating and lighting equipment.

Personal protective equipment

Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

Filter type : Combined particulates and organic vapor type

Hand protection

Material : Chemical-resistant gloves

Remarks : Consider double gloving. Take note that the product is flammable, which may impact the selection of hand protection.

Eye protection : Wear safety glasses with side shields or goggles.
 If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles.
 Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or aerosols.

Skin and body protection : Work uniform or laboratory coat.
 Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits) to avoid exposed skin surfaces.
 Use appropriate degowning techniques to remove potentially contaminated clothing.

Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.

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When using do not eat, drink or smoke.
Contaminated work clothing should not be allowed out of the workplace.
Wash contaminated clothing before re-use.
The effective operation of a facility should include review of engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	viscous liquid
Color	:	dark, brown
Odor	:	strong
Odor Threshold	:	No data available
pH	:	Not applicable
Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	No data available
Flash point	:	30 °C
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Flammability (liquids)	:	Not applicable
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	No data available
Relative vapor density	:	No data available
Relative density	:	No data available
Density	:	1,009 - 1,051 g/cm ³ (20 °C)
Solubility(ies) Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	Not applicable

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Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity	:	
Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Particle size	:	Not applicable

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Flammable liquid and vapor. Vapors may form explosive mixture with air. Can react with strong oxidizing agents.
Conditions to avoid	:	Heat, flames and sparks.
Incompatible materials	:	Oxidizing agents
Hazardous decomposition products	:	No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure**

Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

Harmful if swallowed.

Product:

Acute oral toxicity	:	Acute toxicity estimate: 1,450 mg/kg Method: Calculation method
Acute inhalation toxicity	:	Acute toxicity estimate: > 20 mg/l Exposure time: 4 h Test atmosphere: vapor Method: Calculation method
Acute dermal toxicity	:	Acute toxicity estimate: > 2,000 mg/kg Method: Calculation method

Components:**Tar, wood:**

Acute oral toxicity	:	LD50 (Rat): > 2,000 mg/kg
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Method: OECD Test Guideline 423
Assessment: The substance or mixture has no acute oral toxicity

Rosin:

Acute oral toxicity : LD50 (Rat): 2,800 mg/kg

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Tar, coal:

Acute oral toxicity : LD50 (Rat): 1,700 mg/kg

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg

Ethylbenzene:

Acute oral toxicity : LD50 (Rat): 3,500 mg/kg

Acute inhalation toxicity : LC50 (Rat): 17.8 mg/l
Exposure time: 4 h
Test atmosphere: vapor

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg

Xylene:

Acute oral toxicity : LD50 (Rat): 3,523 mg/kg
Method: Directive 67/548/EEC, Annex V, B.1.

Acute inhalation toxicity : LC50 (Rat): 27.571 mg/l
Exposure time: 4 h
Test atmosphere: vapor

Acute dermal toxicity : LD50 (Rabbit): > 4,200 mg/kg

Dichlofenthion (ISO):

Acute oral toxicity : LD50 (Rat): 172 mg/kg
LD50 (Rat): 270 mg/kg

Acute inhalation toxicity : LC50 (Rat): 1.75 mg/l

Acute dermal toxicity : LD50 (Rat): 355 mg/kg
LD50 (Rabbit): 6,000 mg/kg

Sodium hydroxide:

Acute inhalation toxicity : Assessment: Corrosive to the respiratory tract.

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Phenol:

- Acute oral toxicity : LD50 (Rat): 650 mg/kg
Method: OECD Test Guideline 401
- Acute toxicity estimate (Humans): 140 - 290 mg/kg
Method: Expert judgment
- Acute inhalation toxicity : LC0 (Rat): 0.9 mg/l
Exposure time: 8 h
Test atmosphere: dust/mist
Assessment: Corrosive to the respiratory tract.
- Acute toxicity estimate (Humans): > 0.9 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Expert judgment
- Acute dermal toxicity : LD50 (Rabbit): 660 mg/kg
Method: OECD Test Guideline 402
- Acute toxicity estimate (Humans): 300 mg/kg
Method: Expert judgment

m-Cresol:

- Acute oral toxicity : LD50 (Rat): 121 mg/kg
Remarks: Based on data from similar materials
- Acute inhalation toxicity : Assessment: Corrosive to the respiratory tract.
- Acute dermal toxicity : LD50 (Rabbit): 301 mg/kg
Remarks: Based on data from similar materials

p-Cresol:

- Acute oral toxicity : LD50 (Rat): 172 - 250 mg/kg
- Acute inhalation toxicity : Assessment: Corrosive to the respiratory tract.
- Acute dermal toxicity : LD50 (Rabbit): 213 - 426 mg/kg

Skin corrosion/irritation

Causes severe burns.

Components:

Tar, wood:

- Species : reconstructed human epidermis (RhE)
Method : OECD Test Guideline 439
- Species : reconstructed human epidermis (RhE)
Method : OECD Test Guideline 431
- Result : Skin irritation

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Method : OECD Test Guideline 429
Result : positive
Remarks : Based on data from similar materials

Assessment : Probability or evidence of skin sensitization in humans

Xylene:

Test Type : Local lymph node assay (LLNA)
Routes of exposure : Skin contact
Species : Mouse
Result : negative

Dichlofenthion (ISO):

Routes of exposure : Dermal
Assessment : Does not cause skin sensitization.
Result : Weak sensitizer
Remarks : Based on data from similar materials

Sodium hydroxide:

Test Type : Human repeat insult patch test (HRIPT)
Routes of exposure : Skin contact
Result : negative

Phenol:

Test Type : Buehler Test
Routes of exposure : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Result : negative

p-Cresol:

Test Type : Draize Test
Routes of exposure : Skin contact
Species : Guinea pig
Result : negative

Germ cell mutagenicity

Suspected of causing genetic defects.

Components:**Tar, wood:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Rosin:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

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Tar, coal:

- Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: positive
Remarks: Based on data from similar materials
- Germ cell mutagenicity - Assessment : Positive result(s) from in vivo non-mammalian somatic cell mutagenicity tests, supported by positive results from in vitro mutagenicity assays.
Remarks: Based on national or regional regulation.

Ethylbenzene:

- Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative
- Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative
- Test Type: Chromosome aberration test in vitro
Result: negative
- Genotoxicity in vivo : Test Type: Unscheduled DNA synthesis (UDS) test with mammalian liver cells in vivo
Species: Mouse
Application Route: Inhalation
Method: OECD Test Guideline 486
Result: negative

Xylene:

- Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative
- Test Type: Chromosome aberration test in vitro
Result: negative
- Test Type: In vitro mammalian cell gene mutation test
Result: negative
- Test Type: In vitro sister chromatid exchange assay in mammalian cells
Result: negative
- Genotoxicity in vivo : Test Type: Rodent dominant lethal test (germ cell) (in vivo)
Species: Mouse
Application Route: Skin contact
Result: negative

Phenol:

- Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473

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Result: positive

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Intraperitoneal injection
Method: OECD Test Guideline 474
Result: positive
Remarks: Annex VI From 1272/2008

Germ cell mutagenicity - Assessment : Positive result(s) from in vivo mammalian somatic cell mutagenicity tests.

m-Cresol:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: positive

Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Genotoxicity in vivo : Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
Species: Mouse
Application Route: Ingestion
Method: OECD Test Guideline 475
Result: negative

p-Cresol:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: positive

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative

Genotoxicity in vivo : Test Type: Rodent dominant lethal test (germ cell) (in vivo)
Species: Mouse
Application Route: Ingestion
Method: OECD Test Guideline 478
Result: negative

Carcinogenicity

May cause cancer if swallowed.

Components:

Tar, coal:

Species : Mouse
Application Route : Ingestion
Exposure time : 2 Years

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Result : positive

Carcinogenicity - Assessment : Positive evidence from human epidemiological studies (oral)
Remarks: Based on national or regional regulation.

Ethylbenzene:

Species : Rat

Application Route : inhalation (vapor)

Exposure time : 104 weeks

Result : positive

Remarks : The mechanism or mode of action may not be relevant in humans.

Xylene:

Species : Rat

Application Route : Ingestion

Exposure time : 103 weeks

Result : negative

Phenol:

Species : Mouse

Application Route : Ingestion

Exposure time : 103 weeks

Method : OECD Test Guideline 451

Result : negative

m-Cresol:

Species : Mouse, males

Application Route : Ingestion

Exposure time : 105 weeks

Result : equivocal

Remarks : Based on data from similar materials

Species : Mouse, female

Application Route : Ingestion

Exposure time : 106 - 107 weeks

Result : positive

Remarks : Based on data from similar materials

Carcinogenicity - Assessment : Weight of evidence does not support classification as a carcinogen

p-Cresol:

Species : Mouse

Application Route : Ingestion

Exposure time : 106 - 107 weeks

Result : negative

Remarks : Based on data from similar materials

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Species: Rat
 Application Route: Intraperitoneal
 Developmental Toxicity: LOAEL: 10 mg/kg body weight
 Result: Reduced fetal weight., Embryotoxic effects., No teratogenic effects.
 Remarks: Based on data from similar materials

Reproductive toxicity - Assessment : Suspected of damaging the unborn child.

Phenol:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
 Species: Rat
 Application Route: Ingestion
 Method: OECD Test Guideline 416
 Result: negative

Effects on fetal development : Test Type: Embryo-fetal development
 Species: Mouse
 Application Route: Ingestion
 Method: OECD Test Guideline 414
 Result: negative

m-Cresol:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
 Species: Rat
 Application Route: Ingestion
 Result: negative

Effects on fetal development : Test Type: Prenatal development toxicity study (teratogenicity)
 Species: Rat
 Application Route: Ingestion
 Result: negative

p-Cresol:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
 Species: Rat
 Application Route: Ingestion
 Result: negative

Effects on fetal development : Test Type: Embryo-fetal development
 Species: Rat
 Application Route: Ingestion
 Result: negative

STOT-single exposure

May cause respiratory irritation.
 Causes damage to organs (Nervous system).

Components:

Tar, coal:

Routes of exposure : Ingestion

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Target Organs : Nervous system
Assessment : Shown to produce significant health effects in animals at concentrations of 300 mg/kg bw or less.

Xylene:

Assessment : May cause respiratory irritation.

STOT-repeated exposure

Causes damage to organs (Nervous system) through prolonged or repeated exposure.
May cause damage to organs (Central nervous system, Kidney, Liver, Skin, Respiratory Tract, Auditory system) through prolonged or repeated exposure.

Components:**Tar, coal:**

Target Organs : Respiratory Tract
Assessment : Shown to produce significant health effects in animals at concentrations of >0.02 to 0.2 mg/l/6h/d.

Routes of exposure : inhalation (dust/mist/fume)
Target Organs : Respiratory Tract
Assessment : Shown to produce significant health effects in animals at concentrations of >0.02 to 0.2 mg/l/6h/d.

Ethylbenzene:

Routes of exposure : inhalation (vapor)
Target Organs : Auditory system
Assessment : Shown to produce significant health effects in animals at concentrations of >0.2 to 1 mg/l/6h/d.

Xylene:

Routes of exposure : inhalation (vapor)
Target Organs : Auditory system
Assessment : Shown to produce significant health effects in animals at concentrations of >0.2 to 1 mg/l/6h/d.

Dichlofenthion (ISO):

Target Organs : Nervous system
Assessment : Causes damage to organs through prolonged or repeated exposure.
Remarks : Based on human experience.

Phenol:

Target Organs : Central nervous system, Kidney, Liver, Skin
Assessment : May cause damage to organs through prolonged or repeated exposure.

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Application Route : Skin contact
 Exposure time : 18 Days

m-Cresol:

Species : Rat
 NOAEL : 150 mg/kg
 Application Route : Ingestion
 Exposure time : 13 Weeks
 Method : OECD Test Guideline 408

p-Cresol:

Species : Rat
 NOAEL : 50 mg/kg
 LOAEL : 175 mg/kg
 Application Route : Ingestion
 Exposure time : 90 Days
 Method : OECD Test Guideline 408

Aspiration toxicity

May be fatal if swallowed and enters airways.

Product:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Components:

Ethylbenzene:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Xylene:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Experience with human exposure

Components:

Dichlofenthion (ISO):

Skin contact : Symptoms: irritating, central nervous system effects, sweating
 Remarks: Can be absorbed through skin.
 May cause sensitization by skin contact.

Eye contact : Symptoms: constriction of pupils, central nervous system effects

Ingestion : Symptoms: Nausea, Diarrhea, Vomiting, sweating, Lachrymation, constriction of pupils, Central nervous system depression, Gastrointestinal disturbance, bronchospasm, central nervous system effects, Edema

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SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Tar, wood:

- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 28 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
- Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 17 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
- EC10 (Desmodesmus subspicatus (green algae)): 14 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Rosin:

- Toxicity to fish : LL50 (Danio rerio (zebra fish)): > 1 - < 10 mg/l
Exposure time: 96 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): 911 mg/l
Exposure time: 48 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 202
- Toxicity to algae/aquatic plants : NOELR (Pseudokirchneriella subcapitata (green algae)): > 1,000 mg/l
Exposure time: 72 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 201
- Toxicity to microorganisms : EC50: > 10,000 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

Tar, coal:

- Toxicity to fish : LL50 (Danio rerio (zebra fish)): > 250 mg/l
Exposure time: 96 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 203
Remarks: Based on data from similar materials
- Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): 2.8 mg/l
Exposure time: 48 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 202
Remarks: Based on data from similar materials

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Toxicity to algae/aquatic plants : EL50 (Desmodesmus subspicatus (green algae)): 36 mg/l
 Exposure time: 72 h
 Method: OECD Test Guideline 201
 Remarks: Based on data from similar materials

NOELR (Desmodesmus subspicatus (green algae)): 5 mg/l
 Exposure time: 72 h
 Method: OECD Test Guideline 201
 Remarks: Based on data from similar materials

Ethylbenzene:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 4.2 mg/l
 Exposure time: 96 h
 Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1.8 - 2.4 mg/l
 Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 3.6 mg/l
 Exposure time: 96 h

NOEC (Pseudokirchneriella subcapitata (green algae)): 3.4 mg/l
 Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Ceriodaphnia dubia (water flea)): 0.96 mg/l
 Exposure time: 7 d

Toxicity to microorganisms : EC50 (Nitrosomonas sp.): 96 mg/l
 Exposure time: 24 h

Xylene:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 13.5 mg/l
 Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1 - 10 mg/l
 Exposure time: 24 h
 Method: OECD Test Guideline 202
 Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : EC50 (Skeletonema costatum (marine diatom)): 10 mg/l
 Exposure time: 72 h

Toxicity to fish (Chronic toxicity) : NOEC (Danio rerio (zebra fish)): > 0.1 - < 1 mg/l
 Exposure time: 35 d
 Method: OECD Test Guideline 210
 Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EL10 (Daphnia magna (Water flea)): > 1 - 10 mg/l
 Exposure time: 21 d
 Method: OECD Test Guideline 211
 Remarks: Based on data from similar materials

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Toxicity to microorganisms : NOEC: > 100 mg/l
 Exposure time: 3 h
 Method: OECD Test Guideline 209
 Remarks: Based on data from similar materials

Dichlofenthion (ISO):

Toxicity to fish : LC50 (No species specified): 0.64 mg/l
 Exposure time: 96 h
 Method: OECD Test Guideline 203

LC50 (*Lepomis macrochirus* (Bluegill sunfish)): 1.23 mg/l
 Exposure time: 96 h
 Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): 0.0011 mg/l
 Exposure time: 48 h
 Method: OECD Test Guideline 202

Phenol:

Toxicity to fish : LC50 (*Pimephales promelas* (fathead minnow)): 24.9 mg/l
 Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Ceriodaphnia dubia* (water flea)): 3.1 mg/l
 Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (*Selenastrum capricornutum* (green algae)): 61.1 mg/l
 Exposure time: 96 h

Toxicity to fish (Chronic toxicity) : NOEC: 0.077 mg/l
 Exposure time: 60 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (*Daphnia magna* (Water flea)): 10 mg/l
 Exposure time: 16 d

Toxicity to microorganisms : IC50 (*Nitrosomonas* sp.): 21 mg/l
 Exposure time: 24 h

m-Cresol:

Toxicity to fish : LC50 (*Oncorhynchus mykiss* (rainbow trout)): 8.6 mg/l
 Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia pulex* (Water flea)): > 99.5 mg/l
 Exposure time: 48 h

Toxicity to fish (Chronic toxicity) : NOEC (*Pimephales promelas* (fathead minnow)): 1.35 mg/l
 Exposure time: 32 d
 Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (*Daphnia magna* (Water flea)): 1 mg/l
 Exposure time: 21 d
 Remarks: Based on data from similar materials

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p-Cresol:

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 7.4 mg/l
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 7.7 mg/l
Exposure time: 48 h
Method: DIN 38412
- Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 7.8 mg/l
Exposure time: 48 h

EC10 (Desmodesmus subspicatus (green algae)): 2.3 mg/l
Exposure time: 48 h
- Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 1.35 mg/l
Exposure time: 32 d
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 1 mg/l
Exposure time: 21 d
- Toxicity to microorganisms : IC50 (Nitrosomonas sp.): 260 mg/l
Exposure time: 24 h

Persistence and degradability**Components:****Tar, wood:**

- Biodegradability : Result: Not readily biodegradable.
Biodegradation: 47 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Rosin:

- Biodegradability : Result: Readily biodegradable.
Biodegradation: 71 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

Ethylbenzene:

- Biodegradability : Result: Readily biodegradable.
Biodegradation: 70 - 80 %
Exposure time: 28 d

Xylene:

- Biodegradability : Result: Readily biodegradable.
Biodegradation: > 70 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
Remarks: Based on data from similar materials

Phenol:

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Biodegradability : Result: Readily biodegradable.
 Biodegradation: 62 %
 Exposure time: 10 d
 Method: OECD Test Guideline 301C

m-Cresol:

Biodegradability : Result: Readily biodegradable.
 Biodegradation: 90 %
 Exposure time: 28 d
 Method: OECD Test Guideline 301D

p-Cresol:

Biodegradability : Result: Readily biodegradable.
 Biodegradation: 100 %
 Exposure time: 8 d

Bioaccumulative potential

Components:

Tar, wood:

Partition coefficient: n-octanol/water : log Pow: 0.2 - 2.02

Rosin:

Bioaccumulation : Species: Oncorhynchus mykiss (rainbow trout)
 Bioconcentration factor (BCF): < 100

Partition coefficient: n-octanol/water : log Pow: 3 - 6.2

Tar, coal:

Partition coefficient: n-octanol/water : Remarks: No data available

Ethylbenzene:

Partition coefficient: n-octanol/water : log Pow: 3.6

Xylene:

Partition coefficient: n-octanol/water : log Pow: 3.16
 Remarks: Calculation

Dichlofenthion (ISO):

Partition coefficient: n-octanol/water : log Pow: 5.14

Phenol:

Bioaccumulation : Species: Fish
 Bioconcentration factor (BCF): 17.5
 Method: OECD Test Guideline 305

Partition coefficient: n-octanol/water : log Pow: 1.47

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m-Cresol:

Bioaccumulation : Species: Leuciscus idus (Golden orfe)
Bioconcentration factor (BCF): 17 - 20

Partition coefficient: n-octanol/water : log Pow: 1.96

p-Cresol:

Bioaccumulation : Species: Leuciscus idus (Golden orfe)
Bioconcentration factor (BCF): 17 - 20
Remarks: Based on data from similar materials

Partition coefficient: n-octanol/water : log Pow: 1.94

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : Dispose of in accordance with local regulations.
Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
Empty containers retain residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death.
If not otherwise specified: Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION**International Regulations****UNRTDG**

UN number : UN 2920
Proper shipping name : CORROSIVE LIQUID, FLAMMABLE, N.O.S.
(Sodium hydroxide, Ethylbenzene)
Class : 8
Subsidiary risk : 3
Packing group : II
Labels : 8 (3)

IATA-DGR

UN/ID No. : UN 2920
Proper shipping name : Corrosive liquid, flammable, n.o.s.
(Sodium hydroxide, Ethylbenzene)
Class : 8
Subsidiary risk : 3
Packing group : II
Labels : Corrosive, Flammable Liquids

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Packing instruction (cargo aircraft) : 855
 Packing instruction (passenger aircraft) : 851

IMDG-Code

UN number : UN 2920
 Proper shipping name : CORROSIVE LIQUID, FLAMMABLE, N.O.S.
 (Sodium hydroxide, Ethylbenzene, Dichlofenthion (ISO))
 Class : 8
 Subsidiary risk : 3
 Packing group : II
 Labels : 8 (3)
 EmS Code : F-E, S-C
 Marine pollutant : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

TDG

UN number : UN 2920
 Proper shipping name : CORROSIVE LIQUID, FLAMMABLE, N.O.S.
 (Sodium hydroxide, Ethylbenzene)
 Class : 8
 Subsidiary risk : 3
 Packing group : II
 Labels : 8 (3)
 ERG Code : 132
 Marine pollutant : yes(Dichlofenthion (ISO))

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

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

AICS : not determined
 DSL : not determined
 IECSC : not determined

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
 ACGIH BEI : ACGIH - Biological Exposure Indices (BEI)
 CA AB OEL : Canada. Alberta, Occupational Health and Safety Code (table

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2: OEL)

CA BC OEL : Canada. British Columbia OEL

CA ON OEL : Ontario Table of Occupational Exposure Limits made under the Occupational Health and Safety Act.

CA QC OEL : Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants

ACGIH / TWA : 8-hour, time-weighted average

ACGIH / C : Ceiling limit

CA AB OEL / TWA : 8-hour Occupational exposure limit

CA AB OEL / STEL : 15-minute occupational exposure limit

CA AB OEL / (c) : ceiling occupational exposure limit

CA BC OEL / TWA : 8-hour time weighted average

CA BC OEL / STEL : short-term exposure limit

CA BC OEL / C : ceiling limit

CA ON OEL / TWA : Time-Weighted Average Limit (TWA)

CA QC OEL / TWAEV : Time-weighted average exposure value

CA QC OEL / STEV : Short-term exposure value

CA QC OEL / C : Ceiling

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; 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; 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; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; 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; WHMIS - Workplace Hazardous Materials Information System

Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

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Date format : mm/dd/yyyy

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 is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

CA / Z8