



SAFETY DATA SHEET

Blue Cube Germany Productions GmbH & Co.

Product name: D.E.H.™ 561 Epoxy Hardener

Issue Date: 11-18-2019

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Blue Cube Germany Productions GmbH & Co. encourages and expects you to read and understand the entire SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION

Product name: D.E.H.™ 561 Epoxy Hardener

Recommended use of the chemical and restrictions on use

Identified uses: Hardener for epoxy resin.

COMPANY IDENTIFICATION

Blue Cube Germany Productions GmbH & Co.

Bützflether Sand 2

Stade

DE

21683

Customer Information Number:

+4941417693000

INFO@OLIN.COM

EMERGENCY TELEPHONE

24-Hour Emergency Contact: +32 3 575 55 55

Local Emergency Contact: +1 703-741-5970 / +1 800-424-9300

2. HAZARDS IDENTIFICATION

Hazard classification

GHS classification in accordance with 29 CFR 1910.1200

Acute toxicity - Category 4 - Oral

Skin corrosion - Category 1B

Serious eye damage - Category 1

Skin sensitisation - Category 1

Label elements

Hazard pictograms



Signal word: **DANGER!**

Hazards

Harmful if swallowed.
Causes severe skin burns and eye damage.
May cause an allergic skin reaction.

Precautionary statements

Prevention

Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
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/doctor.
If skin irritation or rash occurs: Get medical advice/ attention.
Wash contaminated clothing before reuse.

Storage

Store locked up.

Disposal

Dispose of contents/ container to an approved waste disposal plant.

Other hazards

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component	CASRN	Concentration
3-Aminomethyl-3,5,5-	2855-13-2	40.0 - 60.0 %

trimethylcyclohexylamine (isophoronediamine)

Benzyl alcohol	100-51-6	30.0 - 50.0 %
Salicylic acid	69-72-7	5.0 - 10.0 %

Note

Actual concentration is withheld as a trade secret

4. FIRST AID MEASURES

Description of first aid measures

General advice:

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Skin contact: Immediate continued and thorough washing in flowing water for at least 30 minutes is imperative while removing contaminated clothing. Prompt medical consultation is essential. Wash clothing before reuse. Properly dispose of leather items such as shoes, belts, and watchbands. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands. Suitable emergency safety shower facility should be immediately available.

Eye contact: Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: Do not induce vomiting. Give one cup (8 ounces or 240 ml) of water or milk if available and transport to a medical facility. Do not give anything by mouth unless the person is fully conscious.

Most important symptoms and effects, both acute and delayed:

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Maintain adequate ventilation and oxygenation of the patient. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. If burn is present, treat as any thermal burn, after decontamination. Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal/esophageal control if lavage is done. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIREFIGHTING MEASURES

Extinguishing media

Suitable extinguishing media: Water fog or fine spray.. Dry chemical fire extinguishers.. Carbon dioxide fire extinguishers.. Foam.. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective..

Unsuitable extinguishing media: Do not use direct water stream.. May spread fire..

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating.. Combustion products may include and are not limited to:.. Nitrogen oxides.. Carbon monoxide.. Carbon dioxide..

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation.. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids..

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry.. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed.. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles.. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container.. Burning liquids may be extinguished by dilution with water.. Do not use direct water stream. May spread fire.. Move container from fire area if this is possible without hazard.. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage.. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS..

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves).. Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location.. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections..

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Evacuate area. Only trained and properly protected personnel must be involved in clean-up operations. Keep upwind of spill. Ventilate area of leak or spill. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Absorb with materials such as: Sand. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated contact with skin. Do not swallow. Avoid breathing vapor. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

Conditions for safe storage: Store in a cool, dry place. Avoid contact with: Metals. Brass. Copper. Copper alloys.

Storage stability

Storage temperature:	Shelf life: Use within
0 - 30 °C (32 - 86 °F)	24 Month

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value
Benzyl alcohol	US WEEL	TWA	10 ppm

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Chlorinated polyethylene. Natural rubber ("latex"). Neoprene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Butyl rubber. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl alcohol ("PVA"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator.

The following should be effective types of air-purifying respirators: Organic vapor cartridge.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical state	liquid
Color	Yellow
Odor	amine-like
Odor Threshold	No test data available
pH	Not applicable
Melting point/range	Not applicable
Freezing point	No test data available
Boiling point (760 mmHg)	247 °C (477 °F) <i>Literature</i> isophoronediamine
Flash point	closed cup > 112 °C (> 234 °F) <i>Literature</i>
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	Not applicable to liquids
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	2 hPa at 20 °C (68 °F) <i>Literature</i> isophoronediamine
Relative Vapor Density (air = 1)	No test data available
Relative Density (water = 1)	1.02 at 25 °C (77 °F) <i>Literature</i>
Water solubility	miscible
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No test data available
Decomposition temperature	No test data available
Dynamic Viscosity	No data available
Kinematic Viscosity	60 cSt at 25 °C (77 °F) <i>ASTM D 445</i>
Explosive properties	No data available
Oxidizing properties	No data available
Molecular weight	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No data available

Chemical stability: Stable under recommended storage conditions. See Storage, Section 7.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems. Reaction with carbon dioxide may form an amine carbamate. Smoke may be generated depending on vapor pressure of mixture. Product absorbs carbon dioxide from the air.

Incompatible materials: Avoid contact with oxidizing materials. Avoid contact with: Acids. Acrylates. Alcohols. Aldehydes. Halogenated hydrocarbons. Ketones. Nitrites. Avoid contact with metals such as: Brass. Bronze. Copper. Copper alloys.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials.. Decomposition products can include and are not limited to:.. Aromatic compounds.. Ammonia.. Volatile amines.. Hydrocarbons.. Phenolics..

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

Low toxicity if swallowed. Swallowing may result in gastrointestinal irritation or ulceration. Swallowing may result in burns of the mouth and throat.

As product: Single dose oral LD50 has not been determined. Based on information for component(s):

LD50, Rat, > 500 mg/kg Estimated.

Acute dermal toxicity

Prolonged or widespread skin contact may result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

Based on information for component(s):

LD50, Rabbit, > 5,000 mg/kg Estimated.

Acute inhalation toxicity

Excessive exposure may cause irritation to upper respiratory tract (nose and throat). May cause central nervous system depression. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness.

The LC50 has not been determined.

Skin corrosion/irritation

Brief contact may cause severe skin burns. Symptoms may include pain, severe local redness and tissue damage.

Serious eye damage/eye irritation

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.
Vapor may cause lacrimation (tears).

Sensitization

A component in this mixture has caused allergic skin reactions in humans.
Contains component(s) which have caused allergic skin sensitization in guinea pigs.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Contains component(s) which have been reported to cause effects on the following organs in animals:
Central nervous system.
Muscles.
Thymus.
Urinary tract.
Kidney.
Respiratory tract.
Liver.

Carcinogenicity

Contains component(s) which did not cause cancer in laboratory animals.

Teratogenicity

Contains component(s) which caused birth defects in laboratory animals only at doses toxic to the mother. Contains component(s) which, in laboratory animals, have been toxic to the fetus only at doses toxic to the mother.

Reproductive toxicity

No relevant data found.

Mutagenicity

Contains component(s) which were negative in some in vitro genetic toxicity studies and positive in others. Genetic toxicity studies in animals were negative for component(s) tested.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

COMPONENTS INFLUENCING TOXICOLOGY:

3-Aminomethyl-3,5,5-trimethylcyclohexylamine (isophoronediamine)

Acute inhalation toxicity

LC50, Rat, 4 Hour, dust/mist, > 5.01 mg/l

Benzyl alcohol

Acute inhalation toxicity

LC50, Rat, 4 Hour, vapour, 11 mg/l

Salicylic acid**Acute inhalation toxicity**

The LC50 has not been determined.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Toxicity**3-Aminomethyl-3,5,5-trimethylcyclohexylamine (isophoronediamine)****Acute toxicity to fish**

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

LC50, Leuciscus idus (Golden orfe), semi-static test, 96 Hour, 110 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, 23 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

EbC50, alga Scenedesmus sp., 72 Hour, Biomass, 37 mg/l

Toxicity to bacteria

EC10, Bacteria, Static, 18 Hour, 1,120 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), 21 d, number of offspring, 3 mg/l

Benzyl alcohol**Acute toxicity to fish**

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

LC50, Pimephales promelas (fathead minnow), Static, 96 Hour, 460 mg/l, Method Not Specified.

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), 48 Hour, 230 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

EC50, Pseudokirchneriella subcapitata (green algae), Static, 72 Hour, Growth rate, 770 mg/l, OECD Test Guideline 201

Toxicity to bacteria

EC50, activated sludge, Respiration inhibition, 49 Hour, Respiration rates., 2,100 mg/l, OECD 209 Test

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna, semi-static test, 21 d, 51 mg/l

Salicylic acid

Acute toxicity to fish

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

LC50, emerald shiner (*Notropis atherinoides*), 96 Hour, > 150 mg/l, Method Not Specified.

LC50, Leuciscus idus (Golden orfe), static test, 48 Hour, 90 mg/l, Method Not Specified.

Acute toxicity to aquatic invertebrates

LC50, *Daphnia magna* (Water flea), 24 Hour, 105 - 230 mg/l, Method Not Specified.

Toxicity to bacteria

EC50, activated sludge, 3 Hour, > 3,200 mg/l, OECD 209 Test

Persistence and degradability**3-Aminomethyl-3,5,5-trimethylcyclohexylamine (isophoronediamine)**

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Fail

Biodegradation: 8 %

Exposure time: 28 d

Method: OECD Test Guideline 301A or Equivalent

10-day Window: Not applicable

Biodegradation: 42 %

Exposure time: 3 Hour

Method: OECD Test Guideline 303A or Equivalent

Theoretical Oxygen Demand: 3.38 mg/mg

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitization: OH radicals

Atmospheric half-life: 0.126 d

Method: Estimated.

Benzyl alcohol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Not applicable

Biodegradation: 92 - 96 %

Exposure time: 14 d

Method: OECD Test Guideline 301C or Equivalent

Theoretical Oxygen Demand: 2.52 mg/mg

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitization: OH radicals

Atmospheric half-life: 1.296 d

Method: Estimated.

Salicylic acid

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Not applicable

Biodegradation: 88.1 %
Exposure time: 14 d
Method: OECD Test Guideline 301C or Equivalent

Theoretical Oxygen Demand: 1.62 mg/mg

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 0.823 d
Method: Estimated.

Bioaccumulative potential

3-Aminomethyl-3,5,5-trimethylcyclohexylamine (isophoronediamine)

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 0.79 Measured

Benzyl alcohol

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 1.10 Measured

Salicylic acid

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 2.26 Measured

Mobility in soil

3-Aminomethyl-3,5,5-trimethylcyclohexylamine (isophoronediamine)

Potential for mobility in soil is medium (Koc between 150 and 500).
Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
Partition coefficient (Koc): 340 Estimated.

Benzyl alcohol

Potential for mobility in soil is very high (Koc between 0 and 50).
Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
Partition coefficient (Koc): 16 Estimated.

Salicylic acid

Potential for mobility in soil is very high (Koc between 0 and 50).
Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
Partition coefficient (Koc): 24 Estimated.

13. DISPOSAL CONSIDERATIONS

Disposal methods: AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition

Information. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

14. TRANSPORT INFORMATION

DOT

Proper shipping name	Isophoronediamine solution
UN number	UN 2289
Class	8
Packing group	III

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ISOPHORONEDIAMINE SOLUTION
UN number	UN 2289
Class	8
Packing group	III
Marine pollutant	No
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Isophoronediamine solution
UN number	UN 2289
Class	8
Packing group	III

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Acute toxicity (any route of exposure)
Skin corrosion or irritation
Serious eye damage or eye irritation

Respiratory or skin sensitisation

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Pennsylvania Worker and Community Right-To-Know Act:

The following chemicals are listed because of the additional requirements of Pennsylvania law:

Components	CASRN
Benzyl alcohol	100-51-6

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

United States TSCA Inventory (TSCA)

All substances listed as active on the TSCA Inventory or are not required to be listed.

16. OTHER INFORMATION

Hazard Rating System

NFPA

Health	Flammability	Instability
3	1	0

Revision

Identification Number: / 000101205997 / 3003 / Issue Date: 11-18-2019 / Version: 6.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

TWA	8-hr TWA
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; 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-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance 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

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

Blue Cube Germany Productions GmbH & Co. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

US