SAFETY DATA SHEET

according to the Globally Harmonized System and US regulation

PERKADOX AIBN

Version 3 Revision Date 06/03/2019 Print Date 03/31/2022 US / Z8

1. IDENTIFICATION

Product name	:	PERKADOX AIBN
Product Use Description	:	Specific use(s): Polymerization initiator
Company	:	Nouryon Functional Chemicals B.V. Zutphenseweg 10 Deventer 7418 AJ NL
Telephone	:	+31889840367
Fax	:	
E-mail address	:	polymer.emeia@nouryon.com
Emergency telephone	:	24 hours:+31 57 06 79211, US-CHEMTREC:1-800-424-9300, CA-CANUTEC:1-613-996-6666, JP: +81 (836) 74 8810, CN: 化学事故应急咨询电话：+86 532 8388 9090

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	crystalline
Color	white
Odor	characteristic

GHS Classification

Self-reactive chemicals, Type C
Acute toxicity, Category 4, Oral
Acute toxicity, Category 4, Inhalation
Short-term (acute) aquatic hazard, Category 3
Long-term (chronic) aquatic hazard, Category 3

GHS label elements

Hazard pictograms :

Signal Word : Danger

Hazard Statements : H242 Heating may cause a fire.
H302 + H332 Harmful if swallowed or if inhaled.
H412 Harmful to aquatic life with long lasting effects.

Precautionary Statements : **Prevention:**

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P220 Keep/Store away from clothing/ combustible materials.
P234 Keep only in original container.
P261 Avoid breathing dust or fume.
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.
P273 Avoid release to the environment.
P280 Wear protective gloves/ eye protection/ face protection.
Response:
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
Storage:
P403 + P235 Store in a well-ventilated place. Keep cool.
P411 Store at temperatures not exceeding 40°C/ 104°F.
P420 Store away from other materials.
Disposal:
P501 Dispose of contents/container in accordance with local regulation.

Carcinogenicity:

IARC : No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA : No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

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.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance/mixture : Substance

Hazardous ingredients

Chemical name	CAS-No.	Classification	Concentration [% W/W]
2,2'-Azodi(isobutyronitrile)	78-67-1	C; H242 Acute Tox. 4; H302 Acute Tox. 4; H332 Aquatic Acute 3; H402 Aquatic Chronic 3; H412	99 - 100

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Consult a physician.
Show this material safety data sheet to the doctor in attendance.

Inhalation : Remove to fresh air.
Keep patient warm and at rest.
Rinse nose and mouth with water.

Skin contact : Take off contaminated clothing and shoes immediately.
Wash the skin immediately with soap and water.

Eye contact : Rinse with plenty of water.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

Ingestion : Clean mouth with water and drink afterwards plenty of water.
Never give anything by mouth to an unconscious person.
Obtain medical attention.

Notes to physician

Symptoms : The symptoms and effects are as expected from the hazards as shown in section 2. No specific product related symptoms are known.

Risks : Harmful if swallowed or if inhaled.

Treatment : Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media	:	High volume water jet
Specific hazards during fire fighting / Specific hazards arising from the chemical	:	Do not use a solid water stream as it may scatter and spread fire. Water spray may be ineffective unless used by experienced firefighters. Do not allow run-off from fire fighting to enter drains or water courses. Risks of ignition followed by flame propagation or secondary explosions shall be prevented by avoiding accumulation of dust, e.g. on floors and ledges.
Combustion products	:	Fire will produce smoke containing hazardous combustion products (see section 10).
Special protective equipment for fire-fighters	:	In the event of fire, wear self-contained breathing apparatus.
Further information	:	Use water spray to cool unopened containers. 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.

See also Section 9. Physical and chemical properties: Safety data

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Use personal protective equipment. Wear respiratory protection. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation. Remove all sources of ignition.
Emergency measures on accidental release	:	Evacuate personnel to safe areas. Only qualified personnel equipped with suitable protective equipment may intervene. Prevent unauthorized persons entering the zone.
Environmental precautions	:	Prevent product from entering drains. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods for cleaning up / Methods for containment	:	Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.
Reference to other sections	:	For disposal considerations see section 13. For personal protection see section 8.

7. HANDLING AND STORAGE

Handling

Advice on safe handling : For personal protection see section 8.
Avoid formation of respirable particles.
Do not breathe vapors/dust.
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Smoking, eating and drinking should be prohibited in the application area.
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.

Advice on protection against fire and explosion : Provide appropriate exhaust ventilation at places where dust is formed.
Keep away from sources of ignition - No smoking.
No sparking tools should be used.
Do not cut or weld on or near this container even when empty.
Keep away from combustible material.

Storage

Requirements for storage areas and containers : No smoking.
Keep in a well-ventilated place.
Keep in a dry place.
Observe label precautions.
Electrical installations / working materials must comply with the technological safety standards.
Store at room temperature in the original container.
Keep container tightly closed.

Maximum storage temperature: : 25 °C (77 °F)

Other data : No decomposition if stored and applied as directed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Ingredients with workplace control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis	Form of exposure
2,2'-Azodi(isobutyronitrile)	78-67-1	TWA	5 mg/m3	2011-07-01	OSHA Z-1	
	Further information	:	(4): CAS number varies with compound X: Skin designation Cyanide			
		C	5 mg/m3	2013-03-01	ACGIH	
	Further information	:	URT irr: Upper Respiratory Tract irritation headache: Headache nausea: Nausea thyroid eff: Thyroid effects Skin: Danger of cutaneous absorption			

			varies: varies Cyanide			
		TWA	5 mg/m3	1989-01-19	OSHA P0	
	Further information	:	Cyanide			
		C	4.7 ppm 5 mg/m3	2013-10-08	NIOSH REL	
	Further information	:	10 minute ceiling value Cyanide			

ACGIH: American Conference of Governmental Industrial Hygienists
BEI: Biological Exposure Index
MAC: Maximum Allowable Concentration
NIOSH: National Institute for Occupational Safety and Health
OEL: OEL: Occupational exposure limit.
STEL: Short term exposure limit
TWA: Time Weighted Average

Occupational exposure limits of decomposition products

Decomposition products	CAS-No.	Value	Control parameters	Update	Basis	Form of exposure
tetramethylsuccinonitrile, tetramethylsuccinonitrile	3333-52-6, 3333-52-6	TWA	0.5 ppm	2007-01-01	ACGIH	
	Further information	:	headache: Headache nausea: Nausea CNS convul: Central Nervous System convulsion Skin: Danger of cutaneous absorption			
		TWA	0.5 ppm 3 mg/m3	2013-10-08	NIOSH REL	
	Further information	:	skin: Potential for dermal absorption			
		TWA	0.5 ppm 3 mg/m3	1997-08-04	OSHA Z-1	
	Further information	:	X: Skin designation (b): The value in mg/m3 is approximate.			
		TWA	0.5 ppm 3 mg/m3	1989-01-19	OSHA P0	
	Further information	:	X: Skin notation			
		PEL	0.5 ppm 3 mg/m3	2014-11-26	CAL PEL	
	Further information	:	S: Skin			
Nitrogen, Nitrogen	7727-37-9, 7727-37-9			2015-04-10	ACGIH	
	Further information	:	See Appendix F: Minimal Oxygen Content asphyxia: Asphyxia D: Simple asphyxiant; see discussion covering Minimal Oxygen Content found in the 'Definitions and Notations' section following the NIC tables			
	Further information	:	(h): A number of gases and vapors, when present in high concentrations, act primarily as asphyxiants without other adverse effects. A concentration limit is not included for each material because the limiting factor is the available oxygen. (Several of these materials present fire or explosion hazards.)			

Hazardous substance

Substance name	CAS-No.	Value	Control parameters	Basis	Update
2,2'-Azodi(isobutyronitrile)	78-67-1	Immediately Dangerous to Life or Health Concentration Value	25 mg/m3	US IDLH	1995-03-01

	Further information	:	Immediately Dangerous to Life or Health Concentrations (IDLH)

Appropriate engineering controls
Explosion proof ventilation recommended.
Provide appropriate exhaust ventilation at places where dust is formed.

Personal protective equipment

Eye/face protection	:	Tightly fitting safety goggles
Hand protection	:	Glove material: Neoprene
	:	Glove material: Nitrile rubber
Skin and body protection	:	Protective suit
Respiratory protection	:	Half mask with a particle filter P2 (EN 143)
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

Environmental exposure controls

General advice	:	Prevent product from entering drains. If the product contaminates rivers and lakes or drains inform respective authorities.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	:	crystalline
Color	:	white
Odor	:	characteristic
Odor Threshold	:	No data available

Safety data

pH	:	Weakly acidic
Melting point	:	Decomposes before melting.
Boiling point/boiling range	:	Decomposes below the boiling point.
Flash point	:	Not applicable
Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	Highly flammable Decomposition products may be flammable.
Flammability (liquids)	:	Not applicable

Lower explosion limit	:	20,000 mg/m3
Upper explosion limit	:	Not applicable
Vapor pressure	:	Not applicable
Relative vapor density	:	Not applicable
Relative density	:	1.1 at 20 °C
Bulk density	:	500 - 600 kg/m3 at 20 °C
Water solubility	:	at 20 °C insoluble
Solubility in other solvents	:	Soluble in hydrocarbons
Partition coefficient: n-octanol/water	:	log Pow: 1.1 at 25 °C
Autoignition temperature	:	Test method not applicable
Decomposition temperature	:	The product is a self-reactive substance or mixture classified as type C., SADT - (Self accelerating decomposition temperature) is the lowest temperature at which self accelerating decomposition may occur with a substance in the packaging as used in transport. A dangerous self-accelerating decomposition reaction and, under certain circumstances, explosion or fire can be caused by thermal decomposition at and above the SADT. Contact with incompatible substances can cause decomposition below the SADT.
Self-Accelerating decomposition temperature (SADT)	:	50 °C
Viscosity, dynamic	:	Not applicable
Viscosity, kinematic	:	Not applicable
Explosive properties	:	Explosive
Oxidizing properties	:	Not classified as oxidizing.

This material safety datasheet only contains information relating to safety and does not replace any product information or product specification.

10. STABILITY AND REACTIVITY

Conditions to avoid	:	Confinement must be avoided. Heat, flames and sparks.
Materials to avoid	:	Contact with the following incompatible materials will result in hazardous decomposition: Acids and bases Iron Copper Reducing agents

		Heavy metals Rust Do not mix with peroxide accelerators, unless under controlled processing. Use only stainless steel 316, PP, polyethylene or glass-lined equipment. For queries regarding the suitability of other materials please contact the supplier.
Hazardous decomposition products	:	tetramethylsuccinonitrile Nitrogen 2-Methylpropanenitrile
Thermal decomposition	:	The product is a self-reactive substance or mixture classified as type C., SADT - (Self accelerating decomposition temperature) is the lowest temperature at which self accelerating decomposition may occur with a substance in the packaging as used in transport. A dangerous self-accelerating decomposition reaction and, under certain circumstances, explosion or fire can be caused by thermal decomposition at and above the SADT. Contact with incompatible substances can cause decomposition below the SADT.
Reactivity	:	Stable under normal conditions.
Chemical stability	:	Stable under recommended storage conditions.
Hazardous reactions	:	Dust may form explosive mixture in air.
Self-Accelerating decomposition temperature (SADT)	:	50 °C (122 °F)

11. TOXICOLOGICAL INFORMATION

PRODUCT INFORMATION:

Hazard Summary

Acute toxicity	:	Harmful if swallowed or if inhaled.
Skin corrosion/irritation	:	Not classified based on available information.
Serious eye damage/eye irritation	:	Not classified based on available information.
Respiratory or skin sensitization	:	Respiratory sensitization: Not classified based on available information. Skin sensitization: Not classified based on available information.
Germ cell mutagenicity	:	Not classified based on available information.
Carcinogenicity	:	Not classified based on available information.
Reproductive toxicity	:	Not classified based on available information.
STOT-single exposure	:	Not classified based on available information.

STOT-repeated exposure	:	Not classified based on available information.
Aspiration hazard	:	Not classified based on available information.

Potential Health Effects

Inhalation	:	Product dust may be irritating to respiratory system. Harmful if inhaled.
Skin	:	Product dust may be irritating to skin.
Eyes	:	Product dust may be irritating to eyes.
Ingestion	:	Harmful if swallowed.
Aggravated Medical Condition	:	None known.
Symptoms of Overexposure	:	The symptoms and effects are as expected from the hazards as shown in section 2. No specific product related symptoms are known.

Toxicology Assessment

Further information	:	No further data available.

Carcinogenicity:

IARC	:	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	:	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
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.

TOXICOLOGY DATA FOR THE INGREDIENTS:

Test result

Component: 2,2'-Azodi(isobutyronitrile)

Acute oral toxicity	:	LD50: 360 mg/kg Species: Rat
Acute inhalation toxicity	:	Acute toxicity estimate : 11 mg/l Test atmosphere: vapor Method: Expert judgment Assessment: The component/mixture is moderately toxic after short term inhalation. Harmful by inhalation.
Acute dermal toxicity	:	LD50: 7,940 mg/kg Species: Rabbit
Skin irritation	:	Species: Rabbit Result: No skin irritation
Eye irritation	:	Species: Rabbit Result: No eye irritation

Germ cell mutagenicity
Genotoxicity in vitro : in vitro test
Result: No evidence of genotoxic effects in vitro.

Genotoxicity in vivo : Result: No evidence of genotoxic effects in vivo.

Carcinogenicity : No data available

Reproductive toxicity :
Not classified due to data which are conclusive although insufficient for classification.

Reproductive toxicity/Fertility : Species: Rat, females
Application Route: Oral
Dose: 0. 2, 10, 50 milligram per kilogram
Fertility: No-observed-effect level: 10 mg/kg bw/day
Method: OECD Test Guideline 422
GLP: yes

Species: Rat, males
Application Route: Oral
Dose: 0. 2, 10, 50 milligram per kilogram
Fertility: No-observed-effect level: 50 mg/kg bw/day
Method: OECD Test Guideline 422
GLP: yes

Target Organ Systemic Toxicant - Repeated exposure : Routes of exposure: Oral

Aspiration toxicity : No aspiration toxicity classification

12. ECOLOGICAL INFORMATION

PRODUCT INFORMATION:

Ecotoxicology Assessment
Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

Test result

Elimination information (persistence and degradability)
Bioaccumulation : Not expected considering the low log Pow value.

Biodegradability : Result: Not readily biodegradable.

Further information on ecology

Hazardous to the ozone layer

Regulation	:	40 CFR Protection of Environment; Part 82 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).

COMPONENTS:

Ecotoxicology Assessment

Component: 2,2'-Azodi(isobutyronitrile)

Short-term (acute) aquatic hazard	:	Harmful to aquatic life.
Long-term (chronic) aquatic hazard	:	Harmful to aquatic life with long lasting effects.

Test result

Component: 2,2'-Azodi(isobutyronitrile)

Ecotoxicity effects

Toxicity to fish	:	LC50: 580 mg/l Exposure time: 96 h Species: Danio rerio (zebra fish)
Toxicity to daphnia and other aquatic invertebrates	:	EC50: > 367 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) Test Type: static test Method: OECD Test Guideline 202
Toxicity to algae	:	ErC50: 4.5 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) Test Type: Growth inhibition Method: OECD Test Guideline 201 NOEC: 1.48 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) Test Type: Growth inhibition Method: OECD Test Guideline 201
Toxicity to bacteria	:	NOEC: > 1,000 mg/l Exposure time: 3 h Species: activated sludge Test Type: Respiration inhibition Method: Domestic OECD Guideline 209

Elimination information (persistence and degradability)

Bioaccumulation	:	Bioconcentration factor (BCF): 1.4
Biodegradability	:	Result: Not readily biodegradable. Method: Closed Bottle test

13. DISPOSAL CONSIDERATIONS

Product	:	The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Hazardous waste Dispose of contents/container in accordance with local regulation.
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not burn, or use a cutting torch on, the empty drum. Due to the high risk of contamination recycling/recovery is not recommended. Follow all warnings even after the container is emptied.

14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

UN/ID No.	:	UN 3234
Class	:	4.1 Not permitted for transport

IMDG-Code

UN number	:	UN 3234
Proper shipping name	:	SELF-REACTIVE SOLID TYPE C, TEMPERATURE CONTROLLED (2,2'-Azodi(isobutyronitrile))
Class	:	4.1
Packing group	:	Not Assigned
Labels	:	4.1
EmS Code	:	F-F, S-K
Marine pollutant	:	no
Remarks	:	The control temperature is the maximum temperature at which the formulation can be transported safely during a prolonged period of time.

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

Not applicable for product as supplied.

Further information for transport

Control temperature	:	40 °C (104 °F)
Emergency temperature	:	45 °C (113 °F)

Domestic regulation

49 CFR

UN/ID/NA number	:	UN 3234
Proper shipping name	:	Self-reactive solid type C, temperature controlled

	:	(2,2'-Azodi(isobutyronitrile))
Class	:	4.1
Packing group	:	Not Assigned
Labels	:	4.1
ERG Code	:	150
Marine pollutant	:	no
Reportable Quantity	:	This product does not contain an environmentally hazardous substance per 49 CFR 172.101, Appendix A.
Remarks	:	The control temperature is the maximum temperature at which the formulation can be transported safely during a prolonged period of time.

15. REGULATORY INFORMATION

Notification status

DSL	:	YES. All components of this product are on the Canadian DSL
AICS	:	YES. On the inventory, or in compliance with the inventory
NZIoC	:	YES. On the inventory, or in compliance with the inventory
ENCS	:	YES. On the inventory, or in compliance with the inventory
ISHL	:	YES. On the inventory, or in compliance with the inventory
KECI	:	YES. On the inventory, or in compliance with the inventory
PICCS	:	YES. On the inventory, or in compliance with the inventory
IECSC	:	YES. On the inventory, or in compliance with the inventory
TCSI	:	YES. On the inventory, or in compliance with the inventory
TSCA	:	YES. All chemical substances in this product are either listed on the TSCA Inventory or in compliance with a TSCA Inventory exemption.

For explanation of abbreviations, see section 16.

TSCA list

TSCA 5(a)(2)	:	No substances are subject to a Significant New Use Rule.
TSCA 12(b)	:	No substances are subject to TSCA 12(b) export notification requirements.

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards	:	Self-reactive chemicals Acute toxicity (any route of exposure)
SARA 302	:	This material does not contain any components with a section 302 EHS TPQ.
SARA 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.

Clean Air Act

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

2,2'-Azodi(isobutyronitrile)	78-67-1	90 - 100 %

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

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.
This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.
This product contains the following toxic pollutants listed under the U.S. Clean Water Act Section 307

2,2'-Azodi(isobutyronitrile)	78-67-1	90 - 100 %

US State Regulations

Massachusetts Right To Know

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know

2,2'-Azodi(isobutyronitrile)	78-67-1	90 - 100 %

New Jersey Right To Know

2,2'-Azodi(isobutyronitrile)	78-67-1	90 - 100 %

California Prop. 65

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

16. OTHER INFORMATION

Full text of H-Statements

H242	:	Heating may cause a fire.
H302	:	Harmful if swallowed.
H332	:	Harmful if inhaled.
H402	:	Harmful to aquatic life.
H412	:	Harmful to aquatic life with long lasting effects.

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
CAL PEL	:	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA P0	:	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / C	:	Ceiling limit
CAL PEL / PEL	:	Permissible exposure limit
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / C	:	Ceiling value not be exceeded at any time.
OSHA P0 / TWA	:	8-hour time weighted average

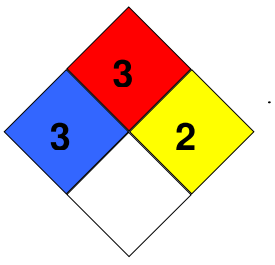
OSHA Z-1 / TWA : 8-hour time weighted average

AICS - Australian Inventory of Chemical Substances; 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; CPR - Controlled Products Regulations; 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; 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

Further information

HMIS Classification : Health Hazard: 3
Flammability: 3
Physical hazards: 2

NFPA Classification : Health Hazard: 3
Fire Hazard: 3
Reactivity Hazard: 2



Notification status explanation

REACH	1907/2006 (EU)
DSL	Canadian Domestic Substances List (DSL)
AICS	Australia Inventory of Chemical Substances (AICS)
NZIoC	New Zealand. Inventory of Chemical Substances

ENCS	Japan. ENCS - Existing and New Chemical Substances Inventory
ISHL	Japan. ISHL - Inventory of Chemical Substances
KECI	Korea. Korean Existing Chemicals Inventory (KECI)
PICCS	Philippines Inventory of Chemicals and Chemical Substances (PICCS)
IECSC	China. Inventory of Existing Chemical Substances in China (IECSC)
TCSI	Taiwan Chemical Substance Inventory (TCSI)
TSCA	United States TSCA Inventory

Further information

Revision Date	06/03/2019

This data sheet contains changes from the previous version in section(s):
Transport information

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