



HazTech Systems, Inc.

SAFETY DATA SHEET

Revision number: 2
Revision date: 07/17/2015

1. IDENTIFICATION

Product name: Zirconium chloride, Alizarin, Methanol, Distilled water (mixture)
Product code: RE2330
Synonyms: Not available
CAS: 13520-92-8/72-48-0/67-56-1
RTECS # ZH250000/CB6580000/PC1400000
CI#: Not available
Recommended use: Laboratory chemicals, Manufacture of substances
Uses advised against: No information available

Company:

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1-800-543-5487
Transportation Emergencies:
Chemtrec 24-Hour
1-800-424-9300 (U.S.A.)
1-703-527-3887 (International)

2. HAZARD(S) IDENTIFICATION

Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 2), H225
Acute toxicity , Oral (Category 3), H301
Acute toxicity , Inhalation (Category 3), H331
Acute toxicity , Dermal (Category 3), H311
Specific target organ toxicity - single exposure (Category 1), H370
For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H225 Highly flammable liquid and vapour.
H301 + H311 + H331 Toxic if swallowed, in contact with skin or if inhaled
H370 Causes damage to organs.
H302 Harmful if swallowed.
H401 Toxic to aquatic life.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.

Precautionary statement(s)

P210 Keep away from heat/sparks/open flames/hot surfaces. -No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion - proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non - sparking tools.
P243 Take precautionary measures against static discharge.
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.

2. HAZARDS IDENTIFICATION

P271	Use only outdoors or in a well -ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P311	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician.
P305 + P351 + P338	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 or doctor/ physician.
P307 + P311	IF exposed: Call a POISON CENTER or doctor/ physician.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol -resistant foam for extinction.
P403 + P233	Store in a well -ventilated place. Keep container tightly closed.
P403 + P235	Store in a well -ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS**Substances (mixture)**

Synonyms	: Zirconium(IV) oxide chloride Zirconyl chlorideoctahydrate
Formula	: $\text{Cl}_2\text{OZr} \cdot 8\text{H}_2\text{O}$
Molecular weight	: 322.25 g/mol
CAS -No.	: 13520 -92 -8
EC-No.	: 231 -717 -9

Hazardous components

Component	Classification	Concentration
Zirconium dichloride oxide		
	Skin Corr. 1B; Eye Dam. 1; H314, H318	<= 100 %

Synonyms	: 1,2 -Dihydroxyanthraquinone Mordant Red 11
Formula	: $\text{C}_{14}\text{H}_8\text{O}_4$
Molecular weight	: 240.21 g/mol
CAS -No.	: 72 -48 -0
EC-No.	: 200 -782 -5

Hazardous components

Component	Classification	Concentration
1,2 -Dihydroxyanthraquinone		
	Acute Tox. 4; Aquatic Acute 2; H302, H401	<= 100 %

Synonyms	: Methyl alcohol
Formula	: CH_4O
Molecular weight	: 32.04 g/mol
CAS -No.	: 67 -56 -1
EC-No.	: 200 -659 -6
Index -No.	: 603 -001 -00 -X
Registration number	: 01 -2119433307 -44 -XXXX

Hazardous components

Component	Classification	Concentration
Methanol		
	Flam. Liq. 2; Acute Tox. 3; STOT SE 1; H225, H301 + H311 + H331, H370	<= 100 %

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

4. FIRST AID MEASURES

Description of first aid measures

General advice

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

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substance or mixture

Carbon oxides, Hydrogen chloride gas, Zirconium oxides

Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

Further information

No data available

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations.

Vapours can accumulate in low areas.

For personal protection see section 8.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up

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).

Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.

Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Storage class (TRGS 510) : Flammable liquids

Specific end use(s)

Apart from the uses mentioned in section 1 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components with workplace control parameters

Component	CAS -No.	Value	Control parameters	Basis
Methanol	67-56-1	TWA	200.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Headache		
		Nausea Dizziness Eye damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Danger of cutaneous absorption		
		STEL	250.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Headache Nausea Dizziness Eye damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Danger of cutaneous absorption		
		TWA	200.000000 ppm 260.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		ST	250.000000 ppm 325.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		TWA	200.000000 ppm 260.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z -1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

Biological occupational exposure limits

Component	CAS -No.	Parameters	Value	Biological specimen	Basis
Methanol	67-56-1	Methanol	15.0000 mg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Derived No Effect Level (DNEL)**

Application Area	Exposure routes	Health effect	Value
Workers	Skin contact	Long -term systemic effects	40mg/kg BW/d
Consumers	Skin contact	Long -term systemic effects	8mg/kg BW/d
Consumers	Ingestion	Long -term systemic effects	8mg/kg BW/d
Workers	Skin contact	Acute systemic effects	40mg/kg BW/d
Consumers	Skin contact	Acute systemic effects	8mg/kg BW/d
Consumers	Ingestion	Acute systemic effects	8mg/kg BW/d
Workers	Inhalation	Acute systemic effects	260 mg/m ³
Workers	Inhalation	Acute local effects	260 mg/m ³
Workers	Inhalation	Long -term systemic effects	260 mg/m ³
Workers	Inhalation	Long -term local effects	260 mg/m ³
Consumers	Inhalation	Acute systemic effects	50 mg/m ³
Consumers	Inhalation	Acute local effects	50 mg/m ³
Consumers	Inhalation	Long -term systemic effects	50 mg/m ³
Consumers	Inhalation	Long -term local effects	50 mg/m ³

Predicted No Effect Concentration (PNEC)

Compartment	Value
Soil	23.5 mg/kg
Marine water	15.4 mg/l
Fresh water	154 mg/l
Fresh water sediment	570.4 mg/kg
Onsite sewage treatment plant	100 mg/kg

Components with workplace control parameters

Component	CAS -No.	Value	Control parameters	Basis
Zirconium dichloride oxide	13520 -92 -8	TWA	5.000000 mg/m ³	USA. Occupational Exposure Limits (OSHA) - Table Z -1 Limits for Air Contaminants
		TWA	5.000000 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Not classifiable as a human carcinogen		
		STEL	10.000000 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
		Not classifiable as a human carcinogen		
		TWA	5.000000 mg/m ³	USA. NIOSH Recommended Exposure Limits
		ST	10.000000 mg/m ³	USA. NIOSH Recommended Exposure Limits

Exposure controls**Appropriate engineering controls**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment**Eye/face protection**

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material : Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time : 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Splash contact

Material : Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time : 480 min

Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES**Information on basic physical and chemical properties**

- | | |
|---|---|
| a) Appearance | Form : liquid
Colour : purple |
| b) Odour | pungent |
| c) Odour Threshold | No data available |
| d) pH | No data available |
| e) Melting point/freezing point | Melting point/range : -98 °C (-144 °F) |
| f) Initial boiling point and boiling range | 64.7 °C (148.5 °F) |
| g) Flash point | 9.7 °C (49.5 °F) - closed cup |
| h) Evaporation rate | No data available |
| i) Flammability (solid, gas) | No data available |
| j) Upper/lower flammability or explosive limits | Upper explosion limit : 36 %(V)
Lower explosion limit : 6 %(V) |
| k) Vapour pressure | 130.3 hPa (97.7 mmHg) at 20.0 °C (68.0 °F)
546.6 hPa (410.0 mmHg) at 50.0 °C (122.0 °F)
169.27 hPa (126.96 mmHg) at 25.0 °C (77.0 °F) |
| l) Vapour density | 1.11 |
| m) Relative density | 0.791 g/mL at 25 °C (77 °F) |
| n) Water solubility | completely miscible |
| o) Partition coefficient: n - octanol/water | log Pow : -0.77 |
| p) Auto-ignition temperature | 455.0 °C (851.0 °F) at 1,013 hPa (760 mmHg) |
| q) Decomposition temperature | No data available |
| r) Viscosity | No data available |
| s) Explosive properties | Not explosive |
| t) Oxidizing properties | The substance or mixture is not classified as oxidizing. |

Other safety information

- | | |
|-------------------------|-----------|
| Minimum ignition energy | 0.14 mJ |
| Conductivity | < 1 µS/cm |
| Relative vapour density | 1.11 |

10. STABILITY AND REACTIVITY

Reactivity

No data available

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Vapours may form explosive mixture with air.

Conditions to avoid

Heat, flames and sparks.

Incompatible materials

Acid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, Acids

Hazardous decomposition products

Other decomposition products - No data available

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity

LDLO Oral - Human - 143 mg/kg

Remarks : Lungs, Thorax, or Respiration:Dyspnea. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

LD50 Oral - Rat - 1,187 - 2,769 mg/kg

LC50 Inhalation - Rat - 4 h - 128.2 mg/l

LC50 Inhalation - Rat - 6 h - 87.6 mg/l

LD50 Dermal - Rabbit - 17,100 mg/kg

No data available

Skin corrosion/irritation

Skin - Rabbit

Result : No skin irritation

Serious eye damage/eye irritation

Eyes - Rabbit

Result : No eye irritation

Respiratory or skin sensitisation

Maximisation Test (GPMT) - Guinea pig

Does not cause skin sensitisation.

(OECD Test Guideline 406)

Germ cell mutagenicity

Ames test

S. typhimurium

Result : negative

in vitro assay

fibroblast

Result : negative

Mutation in mammalian somatic cells.

Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)

Mouse - male and female

Result : negative

Carcinogenicity

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

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

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.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

Damage to fetus not classifiable

Fertility classification not possible from current data.

Specific target organ toxicity - single exposure

Causes damage to organs.

Specific target organ toxicity - repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

11. TOXICOLOGICAL INFORMATION

Aspiration hazard

No aspiration toxicity classification

Additional Information

RTECS : ZH7250000/cb6580000/PC1400000

Methyl alcohol may be fatal or cause blindness if swallowed.

Effects due to ingestion may include; Headache, Dizziness, Drowsiness, metabolic acidosis, Coma, Seizures.

Symptoms may be delayed., Damage of the; Liver, Kidney

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish mortality LC50 - Lepomis macrochirus (Bluegill) - 15,400.0 mg/l - 96 h

NOEC - Oryzias latipes - 7,900 mg/l - 200 h

Toxicity to daphnia and EC50 - Daphnia magna (Water flea) - > 10,000.00 mg/l - 48 h

other aquatic

invertebrates

Toxicity to algae Growth inhibition EC50 - Scenedesmus capricornutum (fresh water algae) -

22,000.0 mg/l - 96 h

Persistence and degradability

Biodegradability aerobic - Exposure time 5 d

Result : 72 % - rapidly biodegradable

Biochemical Oxygen Demand (BOD) 600 - 1,120 mg/g

Chemical Oxygen Demand (COD) 1,420 mg/g

Theoretical oxygen demand 1,500 mg/g

demand

Bioaccumulative potential

Bioaccumulation Cyprinus carpio (Carp) - 72 d

at 20 °C - 5 mg/l

Bioconcentration factor (BCF) : 1.0

Mobility in soil

Will not adsorb on soil.

Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

Other adverse effects

Additional ecological information Avoid release to the environment.

Stability in water at 19 °C 83 - 91 % - 72 h

Remarks : Hydrolyses on contact with water. Hydrolyses readily.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 1230 Class : 3 Packing group : II

Proper shipping name : Methanol

Reportable Quantity (RQ): 5000 lbs

UN number: 3260 Class : 8 Packing group : II

Proper shipping name : Corrosive solid, acidic, inorganic, n.o.s. (Zirconium dichloride oxide)

Reportable Quantity (RQ):

Poison Inhalation Hazard : No

14. TRANSPORT INFORMATION

IMDG

UN number : 1230 Class : 3 (6.1) Packing group : II EMS-No: F-E , S-D

Proper shipping name : METHANOL

UN number : 3260 Class : 8 Packing group : II EMS-No: F-A , S-B

Proper shipping name : CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (Zirconium dichloride oxide)

IATA

UN number: 1230 Class : 3 (6.1) Packing group : II

Proper shipping name : Methanol

UN number: 3260 Class : 8 Packing group : II

Proper shipping name : Corrosive solid, acidic, inorganic, n.o.s. (Zirconium dichloride oxide)

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

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

	CAS -No.	Revision Date
Methanol	67-56-1	2007-07-01

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS -No.	Revision Date
Methanol	67-56-1	2007-07-01
Zirconium dichloride oxide	13520-92-8	1993-04-24

Pennsylvania Right To Know Components

	CAS -No.	Revision Date
Methanol	67-56-1	2007-07-01
Zirconium dichloride oxide	13520-92-8	1993-04-24
1,2-Dihydroxyanthraquinone	72-48-0	

New Jersey Right To Know Components

	CAS -No.	Revision Date
Methanol	67-56-1	2007-07-01
Zirconium dichloride oxide	13520-92-8	1993-04-24
1,2-Dihydroxyanthraquinone	72-48-0	

California Prop. 65 Components

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

	CAS -No.	Revision Date
Methanol	67-56-1	2012-03-16

Methanol

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Flam. Liq.	Flammable liquids
Aquatic Acute	Acute aquatic toxicity
Eye Dam.	Serious eye damage
H225	Highly flammable liquid and vapour.
H301	Toxic if swallowed.
H301 + H311 +	Toxic if swallowed, in contact with skin or if inhaled
H331	
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H370	Causes damage to organs.
H401	Toxic to aquatic life.

16. OTHER INFORMATION

Methanol-CAS # 67-56-1	Zirconium chloride-CAS#13520-92-8	Alizarin-CAS#72-48-0
HMIS Rating	HMIS Rating	HMIS Rating
Health hazard : 2	Health hazard : 3	Health hazard : 1
Chronic Health Hazard : *	Chronic Health Hazard :	Chronic Health Hazard :
Flammability : 3	Flammability : 0	Flammability : 0
Physical Hazard 0	Physical Hazard 0	Physical Hazard 0
NFPA Rating	NFPA Rating	NFPA Rating
Health hazard : 2	Health hazard : 3	Health hazard : 1
Fire Hazard : 3	Fire Hazard : 0	Fire Hazard : 0
Reactivity Hazard : 0	Reactivity Hazard : 0	Reactivity Hazard : 0

Revision Date: 07/17/2015
Prepared by: HazTech Systems, Inc.

This information is based on HazTech Systems, Inc.'s, current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.