

ORCEIN ACETIC SOLUTION

GHS Safety Data Sheet

Version No:2.0

Page 1 of 15

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

ORCEIN ACETIC SOLUTION

OTHER NAMES

"acetic acid solution of orcein", "aceto orcein solution", "laboratory reagent"

PROPER SHIPPING NAME

CORROSIVE LIQUID, N.O.S.(contains acetic acid)

PRODUCT USE

Laboratory reagent.

SUPPLIER

Company: S D FINE - CHEM LIMITED

Address:

315- 317, T.V.IND.ESTATE,

248 WORLI ROAD,

MUMBAI- 400 030, INDIA

technical@sdfine.com

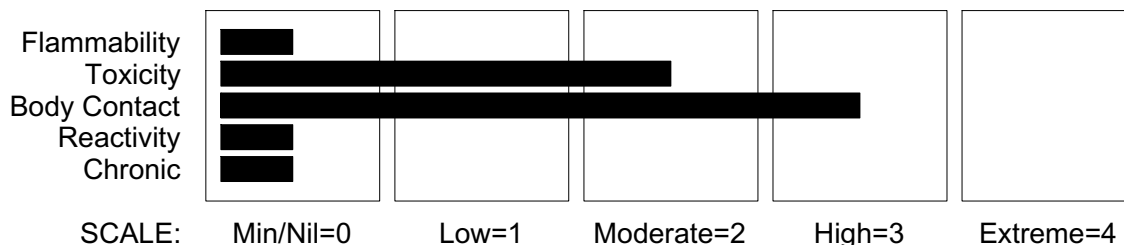
Telephone: 91- 22 24959898

Telephone: 91- 22 24959899

Fax: 91- 22 24937232

Section 2 - HAZARDS IDENTIFICATION

HAZARD RATINGS



GHS Classification

Acute Aquatic Hazard Category 3

Acute Toxicity (Dermal) Category 4

Flammable Liquid Category 4

Metal Corrosion Category 1

Serious Eye Damage Category 1

Skin Corrosion/Irritation Category 1B

continued...

ORCEIN ACETIC SOLUTION

GHS Safety Data Sheet

Version No:2.0

Page 2 of 15

Section 2 - HAZARDS IDENTIFICATION



EMERGENCY OVERVIEW

HAZARD

DANGER

Determined by using GHS criteria:

H227 H312 H290 H314 H318 H402 H318

Combustible Liquid

Harmful in contact with skin

May be corrosive to metals

Causes severe skin burns and eye damage

Causes serious eye damage

Harmful to aquatic life

Causes serious eye damage

PRECAUTIONARY STATEMENTS

Prevention

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Keep only in original container.

Do not breathe dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Avoid release to the environment.

Wear protective gloves/protective clothing/eye protection/face protection.

Response

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

IF ON SKIN: Wash with plenty of soap and water.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

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.

Call a POISON CENTER or doctor/physician if you feel unwell.

Wash contaminated clothing before reuse.

Absorb spillage to prevent material damage.

Storage

Store in a well-ventilated place. Keep cool.

Store locked up.

Store in corrosive resistant container or with a resistant inner liner.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
acetic acid glacial	64-19-7	30-60
orcein	1400-62-0	0-1
water	7732-18-5	40-70

continued...

ORCEIN ACETIC SOLUTION

Section 4 - FIRST AID MEASURES

SWALLOWED

- If poisoning occurs, contact a doctor or Poisons Information Centre.
- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Seek medical advice.

EYE

- If this product comes in contact with the eyes:
- Immediately hold eyelids apart and flush the eye continuously with running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
- Transport to hospital or doctor without delay.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

- If skin or hair contact occurs:
- Immediately flush body and clothes with large amounts of water, using safety shower if available.
- Quickly remove all contaminated clothing, including footwear.
- Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.
- Transport to hospital, or doctor.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor, without delay.

NOTES TO PHYSICIAN

- For acute or short term repeated exposures to strong acids:
- Airway problems may arise from laryngeal edema and inhalation exposure. Treat with 100% oxygen initially.
- Respiratory distress may require cricothyroidotomy if endotracheal intubation is contraindicated by excessive swelling
- Intravenous lines should be established immediately in all cases where there is evidence of circulatory compromise.
- Strong acids produce a coagulation necrosis characterised by formation of a coagulum (eschar) as a result of the dessicating action of the acid on proteins in specific tissues.

INGESTION:

- Immediate dilution (milk or water) within 30 minutes post ingestion is recommended.
- DO NOT attempt to neutralise the acid since exothermic reaction may extend the corrosive injury.
- Be careful to avoid further vomit since re-exposure of the mucosa to the acid is harmful. Limit fluids to one or two glasses in an adult.
- Charcoal has no place in acid management.
- Some authors suggest the use of lavage within 1 hour of ingestion.

SKIN:

- Skin lesions require copious saline irrigation. Treat chemical burns as thermal burns with non-adherent

ORCEIN ACETIC SOLUTION

GHS Safety Data Sheet

Version No:2.0

Page 4 of 15

Section 4 - FIRST AID MEASURES

gauze and wrapping.

- Deep second-degree burns may benefit from topical silver sulfadiazine.

EYE:

- Eye injuries require retraction of the eyelids to ensure thorough irrigation of the conjunctival cul-de-sacs. Irrigation should last at least 20-30 minutes. DO NOT use neutralising agents or any other additives. Several litres of saline are required.
 - Cycloplegic drops, (1% cyclopentolate for short-term use or 5% homatropine for longer term use) antibiotic drops, vasoconstrictive agents or artificial tears may be indicated dependent on the severity of the injury.
 - Steroid eye drops should only be administered with the approval of a consulting ophthalmologist). [Ellenhorn and Barceloux: Medical Toxicology].
-

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- Water spray or fog.
 - Alcohol stable foam.
- Carbon dioxide.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Use fire fighting procedures suitable for surrounding area.
- Do not approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

- The material is not readily combustible under normal conditions.
 - However, it will break down under fire conditions and the organic component may burn.
 - Not considered to be a significant fire risk.
 - Heat may cause expansion or decomposition with violent rupture of containers.
 - Decomposes on heating and may produce toxic fumes of carbon monoxide (CO).
 - May emit acrid smoke.
- Other decomposition products include: carbon dioxide (CO₂).

FIRE INCOMPATIBILITY

- Avoid reaction with strong oxidisers, alkalies.
- Avoid contact with common metals and their alloys.

Personal Protective Equipment

Gas tight chemical resistant suit.

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
Wear protective clothing, impervious gloves and safety glasses.
Carefully, contain and neutralise with slaked lime.
Wipe up Place in suitable containers for disposal.
Wash spill area with large quantities of water.

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ORCEIN ACETIC SOLUTION

GHS Safety Data Sheet

Version No:2.0

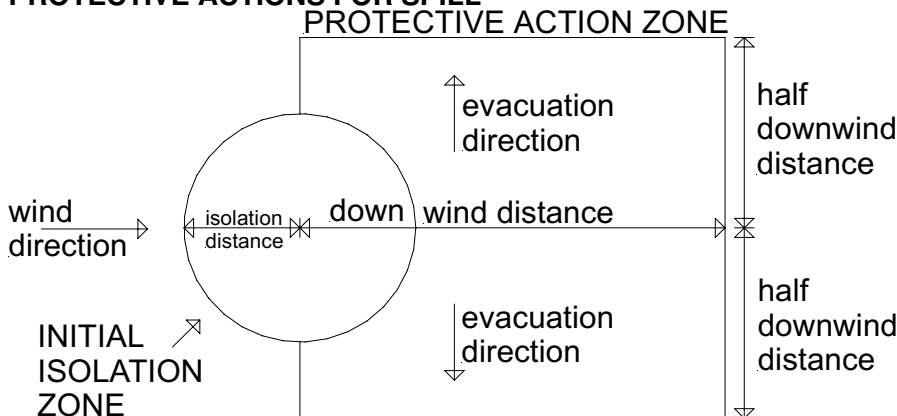
Page 5 of 15

Section 6 - ACCIDENTAL RELEASE MEASURES

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Stop leak if safe to do so.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Neutralise/decontaminate residue.
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
- If contamination of drains or waterways occurs, advise emergency services.

PROTECTIVE ACTIONS FOR SPILL



From IERG (Canada/Australia)

Isolation Distance	25 metres
Downwind Protection Distance	250 metres
IERG Number	37

FOOTNOTES

- 1 PROTECTIVE ACTION ZONE is defined as the area in which people are at risk of harmful exposure. This zone assumes that random changes in wind direction confines the vapour plume to an area within 30 degrees on either side of the predominant wind direction, resulting in a crosswind protective action distance equal to the downwind protective action distance.
- 2 PROTECTIVE ACTIONS should be initiated to the extent possible, beginning with those closest to the spill and working away from the site in the downwind direction. Within the protective action zone a level of vapour concentration may exist resulting in nearly all unprotected persons becoming incapacitated and unable to take protective action and/or incurring serious or irreversible health effects.
- 3 INITIAL ISOLATION ZONE is determined as an area, including upwind of the incident, within which a high probability of localised wind reversal may expose nearly all persons without appropriate protection to life-threatening concentrations of the material.
- 4 SMALL SPILLS involve a leaking package of 200 litres (55 US gallons) or less, such as a drum (jerrican or box with inner containers). Larger packages leaking less than 200 litres and compressed gas leaking from a small cylinder are also considered "small spills".
LARGE SPILLS involve many small leaking packages or a leaking package of greater than 200 litres, such as a cargo tank, portable tank or a "one-tonne" compressed gas cylinder.
- 5 Guide 154 is taken from the US DOT emergency response guide book.
- 6 IERG information is derived from CANUTEC - Transport Canada.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

continued...

ORCEIN ACETIC SOLUTION

GHS Safety Data Sheet

Version No:2.0

Page 6 of 15

Section 6 - ACCIDENTAL RELEASE MEASURES

life-threatening health effects is:

acetic acid glacial 250ppm

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

acetic acid glacial 35ppm

other than mild, transient adverse effects without perceiving a clearly defined odour is:

acetic acid glacial 5ppm

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

Very Toxic (T+)	$\geq 0.1\%$	Toxic (T)	$\geq 3.0\%$
R50	$\geq 0.25\%$	Corrosive (C)	$\geq 5.0\%$
R51	$\geq 2.5\%$		
else	$\geq 10\%$		

where percentage is percentage of ingredient found in the mixture

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid generating and breathing mist and vapour.
 - Avoid smoking, naked lights or ignition sources.
 - DO NOT allow clothing wet with material to stay in contact with skin.
- Use good occupational work practice.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.
- Avoid contact with skin and eyes when using concentrate and solutions.
Wear personal protective equipment when handling.
When handling, DO NOT eat, drink or smoke.
Keep containers securely sealed when not in use.
- **WARNING:** Contact with water generates heat.
- WARNING:** To avoid violent reaction, ALWAYS add material to water and NEVER water to material.
until atmosphere has been checked.
Always wash hands with soap and water after handling. Work clothes should be laundered separately.

SUITABLE CONTAINER

- Packaging as recommended by manufacturer.
- Check that containers are clearly labelled.
- Glass container is suitable for laboratory quantities or Plastic container or Polyethylene or polypropylene container.
- DO NOT use mild steel or galvanised containers.

STORAGE INCOMPATIBILITY

- Segregate from alkalis, oxidising agents and chemicals readily decomposed by acids, i.e. cyanides, sulfides, carbonates.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- No smoking, naked lights or ignition sources.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.

continued...

ORCEIN ACETIC SOLUTION

GHS Safety Data Sheet

Version No:2.0

Page 7 of 15

Section 7 - HANDLING AND STORAGE

- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+: May be stored together

O: May be stored together with specific precautions

X: Must not be stored together

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³
Australia Exposure Standards	acetic acid glacial (Acetic acid)	10	25	15	37

The following materials had no OELs on our records

- orcein: CAS:1400- 62- 0
- water: CAS:7732- 18- 5

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m ³)	Revised IDLH Value (ppm)
acetic acid glacial		50

ODOUR SAFETY FACTOR (OSF)

OSF=21 ("ACETIC ACID, GLACIAL")

■ Exposed individuals are NOT reasonably expected to be warned, by smell, that the Exposure Standard is being exceeded.

Odour Safety Factor (OSF) is determined to fall into either Class C, D or E.

The Odour Safety Factor (OSF) is defined as:

OSF= Exposure Standard (TWA) ppm/ Odour Threshold Value (OTV) ppm

Classification into classes follows:

Class	OSF	Description
A	550	Over 90% of exposed individuals are aware by smell that the Exposure Standard (TLV- TWA for example) is being reached, even when distracted by working activities
B	26- 550	As " A" for 50- 90% of persons being distracted
C	1- 26	As " A" for less than 50% of persons being distracted
D	0.18- 1	10- 50% of persons aware of being tested perceive by smell that the Exposure Standard is being reached
E	<0.18	As " D" for less than 10% of persons aware of being tested

continued...

ORCEIN ACETIC SOLUTION

GHS Safety Data Sheet

Version No:2.0

Page 8 of 15

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

MATERIAL DATA

CHEM-SUPPLY ACETO-ORCEIN STAIN L.R.:

- None assigned. Refer to individual constituents.

ACETIC ACID GLACIAL:

- for acetic acid:

NOTE: Detector tubes for acetic acid, measuring in excess of 1 ppm, are commercially available.

Exposure at or below the TLV-TWA and TLV-STEL is thought to protect the worker against conjunctival, nose and respiratory tract irritation.

Odour Safety Factor(OSF)

OSF=21 ("ACETIC ACID, GLACIAL").

ORCEIN:

■ These "dusts" have little adverse effect on the lungs and do not produce toxic effects or organic disease. Although there is no dust which does not evoke some cellular response at sufficiently high concentrations, the cellular response caused by P.N.O.C.s has the following characteristics:

- the architecture of the air spaces remain intact,
- scar tissue (collagen) is not synthesised to any degree,
- tissue reaction is potentially reversible.

Extensive concentrations of P.N.O.C.s may:

- seriously reduce visibility,
- cause unpleasant deposits in the eyes, ears and nasal passages,
- contribute to skin or mucous membrane injury by chemical or mechanical action, per se, or by the rigorous skin cleansing procedures necessary for their removal. [ACGIH]

This limit does not apply:

- to brief exposures to higher concentrations
- nor does it apply to those substances that may cause physiological impairment at lower concentrations for which a TLV has as yet to be determined.

This exposure standard applies to particles which

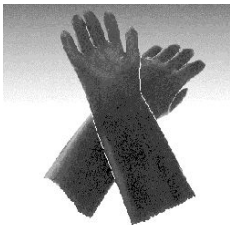
- are insoluble or poorly soluble* in water or, preferably, in aqueous lung fluid (if data is available) and

• have a low toxicity (i.e.. are not cytotoxic, genotoxic, or otherwise chemically reactive tissue, and do not emit ionizing radiation, cause immune sensitization, or cause toxic effects other than by inflammation or by a mechanism of lung overload).

WATER:

- No exposure limits set by NOHSC or ACGIH.

PERSONAL PROTECTION



EYE

- Safety glasses with side shields; or as required,
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers

continued...

ORCEIN ACETIC SOLUTION

GHS Safety Data Sheet

Version No:2.0

Page 9 of 15

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

- Barrier cream and • Rubber Gloves or • Neoprene rubber gloves or • Butyl rubber gloves.
- Do not use polyethylene gloves.
- Rubber boots.

OTHER

- Impervious protective clothing.
 - Ensure that there is ready access to eye wash unit.
- Ensure there is ready access to an emergency shower.

RESPIRATOR

■ Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Breathing Zone Level ppm (volume)	Maximum Protection Factor	Half- face Respirator	Full- Face Respirator
1000	10	AB- AUS P	-
1000	50	-	AB- AUS P
5000	50	Airline *	-
5000	100	-	AB- 2 P
10000	100	-	AB- 3 P
	100+		Airline**

* - Continuous Flow ** - Continuous-flow or positive pressure demand.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required. For further information consult your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

■ Use in a well-ventilated area.

If risk of inhalation or overexposure exists, wear SAA approved respirator or work in fume hood.

General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in specific circumstances. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:
solvent, vapours, degreasing etc., evaporating from tank (in still air).
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)

Air Speed:
0.25- 0.5 m/s (50- 100 f/min)
0.5- 1 m/s (100- 200 f/min.)
1- 2.5 m/s (200- 500 f/min.)

continued...

ORCEIN ACETIC SOLUTION

GHS Safety Data Sheet

Version No:2.0

Page 10 of 15

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).

2.5- 10 m/s (500- 2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range

- 1: Room air currents minimal or favourable to capture
- 2: Contaminants of low toxicity or of nuisance value only.
- 3: Intermittent, low production.
- 4: Large hood or large air mass in motion

Upper end of the range

- 1: Disturbing room air currents
- 2: Contaminants of high toxicity
- 3: High production, heavy use
- 4: Small hood- local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Red acidic and corrosive liquid with pungent vinegar-like odour; mixes with water.

PHYSICAL PROPERTIES

Liquid.
Mixes with water.
Corrosive.
Acid.

State	Liquid	Molecular Weight	Not applicable
Melting Range (°C)	Not available	Boiling Range (°C)	105
Solubility in water (g/L)	Miscible	Flash Point (°C)	> 61 (CC)
pH (1% solution)	Not available	Decomposition Temp (°C)	Not available
pH (as supplied)	2	Autoignition Temp (°C)	Not available
Vapour Pressure (kPa)	2.4 @ 25 deg C	Upper Explosive Limit (%)	Not available
Specific Gravity (water=1)	1.01 approx	Lower Explosive Limit (%)	Not available
Relative Vapour Density (air=1)	> 1	Volatile Component (%vol)	Not available
Evaporation Rate	Not available		

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Reacts with metals producing flammable / explosive hydrogen gas.

continued...

ORCEIN ACETIC SOLUTION

GHS Safety Data Sheet

Version No:2.0

Page 11 of 15

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

- Presence of incompatible materials.
 - Product is considered stable.
 - Hazardous polymerisation will not occur.
- For incompatible materials - refer to Section 7 - Handling and Storage.*

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

- The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.
- Considered an unlikely route of entry in commercial/industrial environments.
- Ingestion may result in nausea, abdominal irritation, pain and vomiting.

EYE

- The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating.
- If applied to the eyes, this material causes severe eye damage.
- The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

SKIN

- Skin contact with the material may be harmful; systemic effects may result following absorption.
- The material can produce chemical burns following direct contact with the skin.
- The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

INHALED

- If inhaled, this material can irritate the throat and lungs of some persons.
- The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function.

CHRONIC HEALTH EFFECTS

- Principal routes of exposure are usually by skin contact with the material and inhalation of vapour. Repeated minor oral exposure can cause blackening of the skin and teeth, erosion of the teeth.

TOXICITY AND IRRITATION

- Not available. Refer to individual constituents.

ACETIC ACID GLACIAL:

- unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY

Oral (human) TDLo: 1.47 mg/kg
Unreport (man) LDLo: 308 mg/kg
Oral (rat) LD50: 3310 mg/kg
Inhalation (human) TCLo: 816 ppm/3 min
Inhalation (rat) LCLo: 16000 ppm/4 hr
Dermal (rabbit) LD50: 1060 mg/kg

IRRITATION

Skin (human): 50mg/24hr - Mild
Skin (rabbit): 525mg (open)- SEVERE
Eye (rabbit): 0.05mg (open)- SEVERE

- Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of

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ORCEIN ACETIC SOLUTION

Section 11 - TOXICOLOGICAL INFORMATION

persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production. The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may cause severe skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Repeated exposures may produce severe ulceration.

NOAELs following repeated exposure to acetic acid and its salts range from 210 mg/kg bw/day (2-4 month acetic acid drinking water study; systemic toxicity) to 3600 mg/kg bw/day (acetic acid, sodium salt, 4 week dietary study; no effects reported). Signs of irritation/corrosion at the site of contact as well as systemic toxicity have been reported. Prolonged inhalation exposure to acetic acid results in muscle imbalance, increase in blood cholinesterase activity, decreases in albumins and decreased growth at concentrations greater than 0.01 mg/m3/day.

Groups of 20 mice/sex were given 0.025% sodium acetate in drinking water (about 60 mg/kg bw/day) for 1 week before breeding, during a 9-day breeding period and (females only) throughout pregnancy, lactation and until the offspring were weaned at 3 weeks of age. No effects on fertility were observed. The male offspring were given the same solution until they were 5-7 weeks old and were then examined in a 24-hour activity test. Examination of the litters revealed no overt deformities and normal pup weights at day 1 and day 21. The activity of offspring of the treated group was lower than that of controls during the first 12 hours but was similar during the second 12 hours. It is unknown if the decreased activity observed in the sodium acetate treated group to was a result of exposure in utero and/or post-weaning, since the pups were exposed during both time periods.). Acetic acid had no effects on implantation or on maternal or fetal survival in rats, mice or rabbits dosed via gavage during gestation days 6-19 at doses up to 1600 mg/kg/day. The number of abnormalities seen in either soft or skeletal tissues of the test groups did not differ from the number occurring in the controls. Sodium acetate had no effect on pregnant mice or offspring when mice were administered 1000 mg/kg bw, by gavage on days 8-12 of gestation.

ORCEIN:

- No significant acute toxicological data identified in literature search.

WATER:

- No significant acute toxicological data identified in literature search.

Section 12 - ECOLOGICAL INFORMATION

acetic acid glacial 96 hr LC50 (88) mg/L Fathead minnow Fish Source: Experimental

Refer to data for ingredients, which follows:

ACETIC ACID GLACIAL:

ORCEIN:

CHEM-SUPPLY ACETO-ORCEIN STAIN L.R.:

- DO NOT discharge into sewer or waterways.

CHEM-SUPPLY ACETO-ORCEIN STAIN L.R.:

Marine Pollutant: Not Determined

ACETIC ACID GLACIAL:

- Fish LC50 (96hr.) (mg/l): 88, 92
- Daphnia magna EC50 (48hr.) (mg/l): 32

continued...

ORCEIN ACETIC SOLUTION

GHS Safety Data Sheet

Version No:2.0

Page 13 of 15

Section 12 - ECOLOGICAL INFORMATION

■ Algae IC50 (72hr.) (mg/l):	90
■ log Kow (Prager 1995):	- 0.31
■ log Kow (Sangster 1997):	- 0.17
■ log Pow (Verschuere 1983):	1.8E+0

■ Ecotoxicity:

The tolerance of water organisms towards pH margin and variation is diverse. Recommended pH values for test species listed in OECD guidelines are between 6.0 and almost 9. Acute testing with fish showed 96h-LC50 at about pH 3.5.

- Acetic acid and its salts (the acetates) can be grouped together because of their close structural relationships, their natural occurrence in plants and animals, and their fundamental role in cell metabolism, particularly in the tricarboxylic acid cycle (also known as the citric acid or Krebs's cycle), which is where humans get their energy.
- Acetic acid is degraded photochemically in the atmosphere to produce hydroxyl radicals (estimated typical half-life of 22 days). Physical removal of acetates on atmospheric particulates may occur via wet or dry deposition.
- Natural water will neutralise dilute solutions of acetic acid.
- Spills of acetic acid on soil will readily biodegrade - the biodegradation rate for acetic acid after 14 days under aerobic conditions is 74 days.
- In invertebrates the toxicity of acetic acid (EC50 = 50-450 mg/L, depending on test species) -under static conditions, the 48 hour EC50 value for acetic acid is 65 mg/L for aquatic invertebrates (the test media was not neutralised). When the test solutions are neutralised, to form acetates, the static 48 hour EC50 for acetic acid is 6000 mg/L. In renewal systems with aquatic invertebrates, 48 hour EC50s for acetic acid are 100 mg/L and 180 mg/L.
- Fish LC50 (96 h): 75-88 mg/L.
- Acetic acid is not expected to bioconcentrate in the aquatic system.
- Low concentrations of acetic acid are harmful to fish.
- Drinking water standards: none available.
- Soil Guidelines: none available.
- Air Quality Standards: none available.
- Prevent, by any means available, spillage from entering drains or water courses.

ORCEIN:

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
acetic acid glacial	LOW		LOW	HIGH
orcein	HIGH		LOW	LOW
water	LOW		LOW	HIGH

Section 13 - DISPOSAL CONSIDERATIONS

- Recycle wherever possible Consult manufacturer for recycling options.
- Consult State Land Waste Management Authority for disposal.
- Treat and neutralise at an effluent treatment plant.
- Decontaminate empty containers with a lime slurry.

Section 14 - TRANSPORTATION INFORMATION

continued...

ORCEIN ACETIC SOLUTION

GHS Safety Data Sheet

Version No:2.0

Page 14 of 15

Section 14 - TRANSPORTATION INFORMATION



Labels Required: CORROSIVE

HAZCHEM:

☐ 2X

Land Transport UNDG:

Class or division:	8	Subsidiary risk:	None
UN No.:	1760	UN packing group:	II
Shipping Name: CORROSIVE LIQUID, N.O.S. (contains acetic acid)			

Air Transport IATA:

ICAO/IATA Class:	8	ICAO/IATA Subrisk:	None
UN/ID Number:	1760	Packing Group:	II
Special provisions:	A3		
Shipping Name: CORROSIVE LIQUID, N.O.S. *(CONTAINS ACETIC ACID)			

Maritime Transport IMDG:

IMDG Class:	8	IMDG Subrisk:	None
UN Number:	1760	Packing Group:	II
EMS Number:	F- A, S- B	Special provisions:	274 944
Limited Quantities:	1 L	Marine Pollutant:	Not Determined
Shipping Name: CORROSIVE LIQUID, N.O.S.(contains acetic acid)			

Section 15 - REGULATORY INFORMATION

REGULATIONS

Regulations for ingredients

acetic acid glacial (CAS: 64-19-7) is found on the following regulatory lists;

"Australia Exposure Standards", "Australia Hazardous Substances", "Australia High Volume Industrial Chemical List (HVICL)", "Australia Illicit Drug Reagents/Essential Chemicals - Category III", "Australia Inventory of Chemical Substances (AICS)", "Australia National Pollutant Inventory", "Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix E (Part 2)", "Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix F (Part 3)", "Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Schedule 2", "Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Schedule 5", "Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Schedule 6", "CODEX General Standard for Food Additives (GSFA) - Additives Permitted for Use in Food in General, Unless Otherwise Specified, in Accordance with GMP", "GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "International Council of Chemical Associations (ICCA) - High Production Volume List", "OECD Representative List of High Production Volume (HPV) Chemicals"

orcein (CAS: 1400-62-0) is found on the following regulatory lists;

"Australia Inventory of Chemical Substances (AICS)"

water (CAS: 7732-18-5) is found on the following regulatory lists;

"Australia Inventory of Chemical Substances (AICS)", "IMO IBC Code Chapter 18: List of products to which the Code does not apply", "OECD Representative List of High Production Volume (HPV) Chemicals"

No data for Chem-Supply Aceto-Orcein Stain L.R. (CW: 8537-68)

continued...

ORCEIN ACETIC SOLUTION

GHS Safety Data Sheet

Version No:2.0

Page 15 of 15

Section 16 - OTHER INFORMATION

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

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