HURST SCIENTIFIC

Safety Data Sheet
Decalcifier Formic Acid

SECTION 1: Identification

GHS Product identifier

Product name	Decalcifier Formic Acid
Product number	DECALFA-1L, 2.5L, 5L
Brand	Hurstchem

Recommended use of the chemical and restrictions on use

Laboratory Reagent

Supplier's details

Name	Hurst Scientific
Address	2/36 Hensbrook Loop 6112 Forrestdale WA Australia
Telephone	1300 778 068
email	sales@hurstscientific.com.au

Emergency phone number

Australian Poisons Information Centre 131 126
Australian Emergency Services 000

SECTION 2: Hazard identification

General hazard statement

Classified as a **Hazardous** substance according to the Globally Harmonised System of Classification and Labelling of Chemicals (GHS) and Safe Work Australia criteria.
Classified as a **Dangerous goods** according to the ADG Code for the Transport of Dangerous Goods by Road and Rail (7th Edition).

Classification of the substance or mixture

- Flammable liquids, Cat. 2
- Corrosive to metals, Cat. 1
- Acute toxicity, oral, Cat. 4
- Acute toxicity, inhalation, Cat. 4
- Skin corrosion/irritation, Cat. 1A

- Specific target organ toxicity following single exposure, Cat. 3

GHS label elements, including precautionary statements.

Pictograms

1. Flame; 2. Corrosion; 3. Exclamation mark

Signal word **Danger**

Hazard statement(s)

H225	Highly flammable liquid and vapor
H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.

Precautionary statement(s)

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P234	Keep only in original container.
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.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor/...
P312	Call a POISON CENTER/doctor/.../ if you feel unwell.
P363	Wash contaminated clothing before reuse.
P370+P378	In case of fire: Use … to extinguish.
P390	Absorb spillage to prevent material-damage.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P403+P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/container to …

SECTION 3: Composition/information on ingredients

Mixtures

1. Formic acid

Concentration	>10 %
CAS no.	64-18-6

2. Water

Concentration	Balance
CAS no.	7732-18-5

SECTION 4: First-aid measures

Description of necessary first-aid measures

If inhaled	Evacuate to fresh air immediately. If unconscious place in recovery position, provide artificial respiration if breathing ceases using a suitable apparatus – NOT mouth-mouth. Seek immediate medical attention.
In case of skin contact	Remove contaminated clothing and flush affected area with water until told to stop by the Poisons Information Centre. Seek immediate medical attention.
In case of eye contact	Flush eyes with copious amounts of water for at least 15 minutes. Seek immediate medical attention.
If swallowed	DO NOT induce vomiting. Rinse mouth out with water. Seek immediate medical attention.

Personal protective equipment for first-aid responders
Eye wash station, safety shower and First Aid kit.

Indication of immediate medical attention and special treatment needed, if necessary
Treat symptomatically.

SECTION 5: Fire-fighting measures

Suitable extinguishing media
Use alcohol stable foam, water spray or fog, foam, or dry chemical powder.

Specific hazards arising from the chemical.
Toxic gases may evolve.

Special protective actions for fire-fighters
Wear SCBA (Self-Contained Breathing Apparatus) and full protective equipment.

Hazchem code 2W

SECTION 6: Accidental release measures

Personal precautions, protective equipment, and emergency procedures
Remove all sources of ignition. Wear appropriate protective clothing. Ensure adequate ventilation. Avoid breathing in vapours, mist or gas. If possible, contain the spill. Evacuate all unnecessary personnel.

Methods and materials for containment and cleaning up.
Absorb with vermiculite or similar and place into a suitably labelled container. Dispose of waste according to local authority guidelines. Wash the affected area with a large volume of water. Do not contaminate drains or waterways.

SECTION 7: Handling and storage

Precautions for safe handling
Use only in an adequately ventilated area. Avoid breathing in mists or vapours. Wear appropriate protective clothing to avoid any exposure and practice good personal hygiene. Always add material to water and NEVER water to material.

Conditions for safe storage, including any incompatibilities.
Store in a cool, dry, well-ventilated flammable liquid storage area out of direct sunlight and away from sources of ignition. Keep container tightly closed when not in use. Decomposition may occur after prolonged storage.

SECTION 8: Exposure controls/personal protection

National exposure standards **Formic Acid:** [TWA]: 5ppm, 9.4mg/m3
[STEL]: 10ppm, 19mg/m3

Appropriate engineering controls
Ensure adequate ventilation to maintain airborne concentrations below national exposure standards.

Individual protection measures, such as personal protective equipment (PPE)

Respiratory protection
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirators when necessary.

Eye/face protection
Safety glasses or goggles,

Skin protection
Chemical-resistant gloves and laboratory coat.

Body protection
Biological Limit Values Not available for this product.

SECTION 9: Physical and chemical properties

Basic physical and chemical properties

Physical state	Liquid
Colour	Clear
Odor	Pungent penetrating odour
Melting point/freezing point	8.4°C
Boiling point or initial boiling point and boiling range	100.8°C
Flammability	Combustible: Flash Point: 68.89^{o}C
Lower and upper explosion limit/flammability limit	12-57%
pH	Not available
Solubility	Soluble
Vapor pressure	4.5 kPa @ 20^{o}C
Density and/or relative density	Not available
Relative vapor density	1.6

SECTION 10: Stability and reactivity

Reactivity
Non-reactive under recommended conditions for use and storage. Corrosive in contact with metals.

Chemical stability
Stable under recommended conditions for use and storage.

Possibility of hazardous reactions
Polymerisation will not occur.

Conditions to avoid.
Metals, heat, and incompatibles. Reacts explosively or violently strong oxidisers, with hydrogen peroxide, furfuryl alcohol, hypochlorite's, isocyanides, nitromethane, chromic acid, nitric acid, phosphorus pentaoxide, strong bases thallium nitrate, nitromethane. Reacts with concentrated sulfuric acid to produce carbon dioxide.

Incompatible materials
Is incompatible with alkalis, ammonia, aliphatic amines, alkanolamines, furfuryl alcohol, isocyanates, alkylene oxides, epichlorohydrin, palladium and metals.

Hazardous decomposition products
Toxic gases may evolve. Slowly decomposes in storage.

SECTION 11: Toxicological information

Information on toxicological effects

HEALTH EFFECTS:

ACUTE:

Eye Contact	This material can cause severe eye damage. Direct eye contact may cause pain, lacrimation, sensitivity to light and possibly corneal burns. Mild burns of the epithelia generally recover rapidly and completely.
Skin Contact	May result in pain and burns; these may be deep and may heal slowly and form scar tissue. Entry into the Blood stream, through cuts, abrasions, or lesions, may produce systemic injury with harmful effects. May cause irritation, burns, keloids and blisters.
Inhalation	Corrosive acids can cause irritation of the respiratory tract, with coughing, choking and mucous membrane damage. There may be dizziness, headache, nausea, and weakness. Excessive inhalation of formic acid vapour can produce respiratory symptoms, headache, nausea, and weakness.
Ingestion	Ingestion of acidic corrosives may produce burns around and, in the mouth, throat and oesophagus. Pain and difficulty swallowing and speaking may also result. Formic acid has a half-life of 2.5 hours and may cause salivation, oral burning sensation, nausea, vomiting, diarrhoea, tissue damage, bleeding, shock and even death in severe cases.

Skin corrosion/irritation
Burns.

Serious eye damage/irritation
No classification available.

Respiratory or skin sensitization
No classification available.

Germ cell mutagenicity

No classification available.

Carcinogenicity
Not listed in the IARC monographs.

Reproductive toxicity
No classification available.

Specific target organ toxicity (STOT) - single exposure.
May cause respiratory irritation.

Specific target organ toxicity (STOT) - repeated exposure.
No classification available.

Aspiration hazard
No classification available.

Additional information
TOXICITY DATA:
Inhalation (mouse) LC50: 6.2 mg/L/15M[2]
Inhalation (rat) LC50: 15 mg/L/15mE[2]
Oral (rat) LD50: 730 mg/kg[1]

SECTION 12: Ecological information

Toxicity
LC50 (Fish): 46mg/L/96h
EC50 (Crustacea): 34.2mg/L/48h

Persistence and degradability
Water/Soil (Half-life) = 14 days. Air (Half-life) = 55.46 days

Bioaccumulate potential
Not expected to bio-accumulate.

Mobility in soil
Not available.

Environmental fate (exposure) Do not contaminate drains and waterways.

SECTION 13: Disposal considerations

Product disposal
Dispose of in accordance with local authority guidelines. Empty containers may still represent a hazard.

Packaging disposal
Dispose of in accordance with local authority guidelines. Empty containers may still represent a hazard.

Other disposal recommendations
Special precautions Nil.

SECTION 14: Transport information

UN Number	1779
Hazchem emergency action code (EAC)	2W
UN Proper Shipping Name	Formic Acid
Transport hazard class(es)	8, Sub risk 3
Packing group	II

Special precautions for user

Class 8 Corrosives are incompatible in a placard load with any of the following: -
Class 1
Class 4.3
Class 5
Class 6, if the Class 6 dangerous goods are cyanides and the Class 8 dangerous goods are acids.
Class 7

SECTION 15: Regulatory information

Chemical Safety Assessment

- Poison Schedule: S5.
- TWA (Time Weighted Average): The average airborne concentration of a particular substance when calculated over a normal eight hour working day, for a five-day week.

SECTION 16: Other information

Further information/disclaimer

This SDS is prepared in accordance with the Safe Work Australia, Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice, (2011). The information contained within is believed to be accurate at the date of preparation/review. Hurst Scientific makes no claims of the accuracy or completeness of the information and excludes all liability for any loss or damage related to the supply or use of the information in this material safety data sheet. It is recommended the user make their own determinations as to the suitability of the information provided to the application in which the product is to be used.
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Preparation information

References

1. Safe Work Australia, Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice, (2011).
2. Safe Work Australia, National Code of Practice for the Labelling of Workplace Hazardous Chemicals (2015).
3. Safe Work Australia, Workplace Exposure Standards for Airborne Contaminants (2013)
4. National Transport Commission Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code); Can print: Canberra (2007), Volume 1, 7th Edition.
5. Standards Australia, Dangerous Goods Initial Emergency Response Guide: Australian Handbook (SAA/SNZ HB76); Homebush (2004).