



SAFTEY DATA SHEET

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1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product Identifier

Product Name DESCALER
Synonym(s) DES1L, DES5L, DES10L, DES20L, DES200L, DES1000L

1.2 Uses and uses advised against

Use(s) Water Stain, Mineral Stain & Rust Remover.

1.3 Details of the supplier of the product

Supplier Name Northern Chemicals Pty Ltd
Address 157 Hartley St, Cairns, QLD, 4870, Australia
Telephone (07) 4035 4622
Fax (07) 4035 4932
Email enquiries@northernchemicals.com.au
Website www.northernchemicals.com.au

1.4 Emergency telephone number(s)

Emergency (07) 4035 4622

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO AUSTRALIAN WHS REGULATIONS

GHS classification(s) Serious Eye Damage Category 1
Specific target organ toxicity - single exposure Category 3
Skin Corrosion/Irritation Category 1A

2.2 Label elements

Signal Word DANGER

Pictogram(s)



Hazard statement(s)

H318 Causes serious eye damage.
H335 May cause respiratory irritation.
H314 Causes severe skin burns and eye damage.

Prevention statement(s)

P273 Avoid release to the environment.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response statement(s)

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin

with water/shower.
 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 or doctor/physician.

Storage statement(s)

P405 Store locked up.
 P403+P233 Store in a well-ventilated place. Keep container tightly closed.

Disposal statement(s)

P501 Dispose of contents/container in accordance with local regulations.

2.3 Other hazards

N/A

3. COMPOSITION / INFORMATION ON INGREDIENTS**3.1 Substances / Mixtures**

INGREDIENT	CAS NUMBER	CONTENT
WATER	7732-18-5	>60%
HYDROCHLORIC ACID	7647-01-0	10-30%
SURFACTANT(S)	N/A	<10%

4. FIRST AID MEASURES**4.1 Description of first aid measures**

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.

Inhalation 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

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.

Ingestion For advice, contact a Poisons Information Centre or a doctor at once. Urgent hospital treatment is likely to be needed. 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. Transport to hospital or doctor without delay.

First aid facilities Eye wash facilities should be available.

4.2 Immediate medical attention and special treatment needed

Treat symptomatically. 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 desiccating 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 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).

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

There is no restriction on the type of extinguisher which may be used. Use extinguishing media suitable for

5.2 Special hazards arising from the substance or mixture

None known

5.3 Advice for firefighters

Alert Fire Brigade and tell them location and nature of hazard. Wear breathing apparatus plus protective gloves in the event of a fire. Prevent, by any means available, spillage from entering drains or water courses. 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.

Non combustible. Not considered to be a significant fire risk. Acids may react with metals to produce hydrogen, a highly flammable and explosive gas. Heating may cause expansion or decomposition leading to violent rupture of containers. May emit corrosive, poisonous fumes. May emit acrid smoke. Decomposition may produce toxic fumes of: hydrogen chloride Contains low boiling substance: Closed containers may rupture due to pressure buildup under fire conditions. May emit poisonous fumes. May emit corrosive fumes.

5.4 Hazchem code

N/A

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

See section 8

6.2 Environmental precautions

See section 12

6.3 Methods of cleaning up

Minor Spills

Clean up all spills immediately. Avoid breathing vapours and contact with skin and eyes. Control personal contact with the substance, by using protective equipment. Contain and absorb spill with sand, earth, inert material or vermiculite. Wipe up. Place in a suitable, labelled container for waste disposal.

Major Spills

Moderate hazard. Clear area of personnel and move upwind. Alert Fire Brigade and tell them location and nature of hazard. Wear breathing apparatus plus protective gloves. 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 (see Section 13 for specific agent). 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

6.4 Reference to other sections

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

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Contains low boiling substance: Storage in sealed containers may result in pressure buildup causing violent rupture of containers not rated appropriately. Check for bulging containers. Vent periodically. Always release caps or seals slowly to ensure slow dissipation of vapours. Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. Prevent concentration in hollows and sumps. DO NOT enter confined spaces until atmosphere has been checked. DO NOT allow material to contact humans, exposed food or food utensils. Avoid contact with incompatible materials. When handling, DO NOT eat, drink or smoke. Keep containers securely sealed when not in use. Avoid physical damage to containers. Always wash hands with soap and water after handling. Work clothes should be laundered separately. Launder contaminated clothing before re-use. Use good occupational work practice. Observe manufacturer's storage and handling recommendations contained within this SDS. Atmosphere should be regularly checked against established exposure standards to ensure safe working

7.2 Conditions for safe storage, including any incompatibilities

Suitable Container

Polyethylene or polypropylene container. Packing as recommended by manufacturer. Check all containers are clearly labelled and free from leaks.

Storage Incompatibilities

Inorganic acids are generally soluble in water with the release of hydrogen ions. The resulting solutions have pH's of less than 7.0. Inorganic acids neutralise chemical bases (for example: amines and inorganic hydroxides) to form salts - neutralisation can generate dangerously large amounts of heat in small spaces. The dissolution of inorganic acids in water or the dilution of their concentrated solutions with additional water may generate significant heat. The addition of water to inorganic acids often generates sufficient heat in the small region of mixing to cause some of the water to boil explosively. The resulting "bumping" can spatter the acid. Inorganic acids react with active metals, including such structural metals as aluminium and iron, to release hydrogen, a flammable gas. Inorganic acids can initiate the polymerisation of certain classes of organic compounds. Inorganic acids react with cyanide compounds to release gaseous hydrogen cyanide. Inorganic acids generate flammable and/or toxic gases in contact with dithiocarbamates, isocyanates, mercaptans, nitrides, nitriles, sulfides, and strong reducing agents. Additional gas-generating reactions occur with sulfites, nitrites, thiosulfates (to give H₂S and SO₃), dithionites (SO₂), and even carbonates. Acids often Hydrogen chloride: reacts strongly with strong oxidisers (releasing chlorine gas), acetic anhydride, caesium cyanotridecahydrodecaborate(2-), ethylidene difluoride, hexalithium disilicide, metal acetylides, sodium, silicon dioxide, tetraselenium tetranitride, and many organic materials is incompatible with alkaline materials, acetic anhydride, acetylides, aliphatic amines, alkanolamines, alkylene oxides, aluminium, aluminium-titanium alloys, aromatic amines, amines, amides, 2-aminoethanol, ammonia, ammonium hydroxide, borides, calcium phosphide, carbides, carbonates, cyanides, chlorosulfonic acid, ethylenediamine, ethyleneimine, epichlorohydrin, formaldehyde, isocyanates, metals, metal oxides, metal hydroxides, metal acetylides, metal carbides, oleum, organic anhydrides, potassium permanganate, perchloric acid, phosphides, 3-propiolactone, silicides, sulfides, sulfites, sulfuric acid, uranium phosphide, vinyl acetate, vinylidene fluoride. ttacks most metals forming flammable hydrogen gas, and some plastics, rubbers and coatings. Reacts with zinc, brass, galvanised iron, aluminium, copper and copper alloys. Reacts vigorously with alkalis. Reacts with mild steel, galvanised steel / zinc producing hydrogen gas which may form an

7.3 Specific end use(s)

N/A

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

Ingredient Data

Source	Ingredient	TWA	STEL	Peak	Notes
SWA (AUS)	hydrochloric acid	N/A	N/A	7.5 mg/m ³ / 5 ppm	N/A

Emergency Limits

Ingredient	Material Name	TEEL-1	TEEL-2	TEEL-3
hydrochloric acid	hydrogen chloride (hydrochloric acid)	N/A	N/A	N/A

Ingredient	Original IDLH	Revised IDLH
hydroxyethanediphosphonic acid	N/A	N/A
water	N/A	N/A

8.2 Exposure controls

Engineering Controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are: Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use. Employers may need to use multiple types of controls to prevent employee

Personal Protective Equipment



Eye / Face

Safety glasses with unperforated side shields may be used where continuous eye protection is desirable, as in laboratories; spectacles are not sufficient where complete eye protection is needed such as when handling bulk-quantities, where there is a danger of splashing, or if the material may be under pressure. Chemical goggles. Whenever there is a danger of the material coming in contact with the eyes; goggles must be properly fitted. Full face shield (20 cm, 8 in minimum) may be required for supplementary but never for primary protection of eyes; these afford face protection. Alternatively a gas mask may replace splash goggles and face shields. Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses 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 have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]

Hands / Feet

Elbow length PVC gloves. When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots. NOTE: The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact. Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.

Body

Overalls. P.V.C. apron. Barrier cream. Skin cleansing cream.

Respiratory

See above.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Cloudy Liquid	Relative density	N/A	Solubility in water	N/A
Physical state	Liquid	Partition coefficient	N/A	Vapour density	N/A
Odour	Acid	Auto-ignition temperature	N/A		
pH	1	Decomposition temperature	N/A		
Melting point	N/A	Viscosity	N/A		
Boiling point	N/A	Molecular weight	N/A		
Flash point	N/A	Taste	N/A		
Evaporation rate	N/A	Explosive properties	N/A		
Flammability	N/A	Oxidising properties	N/A		
Upper Explosive Limit	N/A	Surface Tension	N/A		
Lower Explosive Limit	N/A	Volatile Component	N/A		
Vapour pressure	N/A	Gas group	N/A		

10. STABILITY AND REACTIVITY

10.1 Reactivity

See section 7

10.2 Chemical stability

Unstable in the presence of incompatible materials. Product is considered stable. Hazardous polymerisation will not

10.3 Possibility of hazardous reactions

See section 7

10.4 Conditions to avoid

See section 7

10.5 Incompatible materials

See section 7

10.6 Hazardous decomposition products

See section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Inhaled

The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Corrosive acids can cause irritation of the respiratory tract, with coughing, choking and mucous membrane damage. There may be dizziness, headache, nausea and weakness. Not normally a hazard due to non-volatile nature of product. The material has NOT been classified by EC Directives or other classification systems as "harmful by inhalation". This is because of the lack of corroborating animal or human evidence. The use of a quantity of material in an unventilated or confined space may result in increased exposure and an irritating atmosphere developing. Before starting consider control of exposure by mechanical

Ingestion

Ingestion of acidic corrosives may produce burns around and in the mouth, the throat and oesophagus. Immediate pain and difficulties in swallowing and speaking may also be evident. The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.

Skin Contact

Skin contact with acidic corrosives may result in pain and burns; these may be deep with distinct edges and may heal slowly with the formation of scar tissue. Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions. Open cuts, abraded or irritated skin should not be exposed to this material. Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. This material can cause inflammation of the skin on contact in some persons.

Eye

If applied to the eyes, this material causes severe eye damage. Direct eye contact with acid corrosives may produce pain, tears, sensitivity to light and burns. Mild burns of the epithelia generally recover rapidly and

Chronic

Repeated or prolonged exposure to acids may result in the erosion of teeth, swelling and/or ulceration of mouth lining. Irritation of airways to lung, with cough, and inflammation of lung tissue often occurs. Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. There is some evidence that inhaling this product is more likely to cause a sensitisation reaction in some persons compared to the general population. There is limited evidence that, skin contact with this product is more likely to cause a sensitisation reaction in some persons compared to the general population. There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment. Chronic minor exposure to hydrogen chloride (HCl) vapour or

fume may cause discolouration or erosion of the teeth, bleeding of the nose and gums; and ulceration of the nasal mucous membranes. Repeated exposures of animals to concentrations of about 34 ppm HCl produced no immediate toxic effects. Workers exposed to hydrochloric acid suffered from gastritis and a number of cases of chronic bronchitis have also been reported. Repeated or prolonged exposure to dilute solutions of HCl may

DESCALER	TOXICITY	IRRITATION
	N/A	N/A

hydrochloric acid	TOXICITY	IRRITATION
	Inhalation (rat) LC50: 3124 ppm/1hr Oral (rat) LD50: 900 mg/kg	Eye (rabbit): 5mg/30s - mild

Water	TOXICITY	IRRITATION
	Oral (rat) LD50: >90000 mg/kg	N/A

HYDROCHLORIC ACID

for acid mists, aerosols, vapours. Data from assays for genotoxic activity in vitro suggest that eukaryotic cells are susceptible to genetic damage when the pH falls to about 6.5. Cells from the respiratory tract have not been examined in this respect. Mucous secretion may protect the cells of the airways from direct exposure to inhaled acidic mists, just as mucous plays an important role in protecting the gastric epithelium from its auto-secreted hydrochloric acid. In considering whether pH itself induces genotoxic events in vivo in the respiratory system, comparison should be made with the human stomach, in which gastric juice may be at pH 1-2 under fasting or nocturnal conditions, and with the human urinary bladder, in which the pH of urine can range from <5 to > 7 and normally averages 6.2. The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants

Acute Toxicity	NO	Carcinogenicity	NO
Skin Irritation/Corrosion	NO	Reproductivity	NO
Serious Eye Damage/Irritation	YES	STOT - Single Exposure	YES
Respiratory or Skin sensitisation	YES	STOT - Repeated Exposure	NO
Mutagenicity	NO	Aspiration Hazard	NO

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Ingredient	Endpoint	Test Duration (hr)	Species	Value
Hydrochloric Acid	LC50	96	Fish	70.057mg/L
Hydrochloric Acid	EC50	96	Algae or other aquatic plants	344.947mg/L
Hydrochloric Acid	EC50	9.33	Fish	0.014000mg/L
Hydrochloric Acid	NOEC	0.08	Fish	10mg/L

DO NOT discharge into sewer or waterways.

12.2 Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
water	LOW	LOW
hydrochloric acid	LOW	LOW

12.3 Bioaccumulative potential

Ingredient	Bioaccumulation
water	LOW (LogKOW = -1.38)
hydrochloric acid	LOW (LogKOW = 0.5392)

12.4 Mobility in soil

Ingredient	Mobility
water	LOW (KOC = 14.3)
hydrochloric acid	LOW (KOC = 14.3)

12.5 Other adverse effects

N/A

13. DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods****Product / Packaging disposal**

Recycle wherever possible. Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified. Treat and neutralise at an approved treatment plant. Treatment should involve: Neutralisation with soda-ash or soda-lime followed by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus (after admixture with suitable combustible material). Decontaminate empty containers with 5% aqueous sodium hydroxide or soda ash, followed by water. Observe all label safeguards

14. TRANSPORT INFORMATION**Labels Required**

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	1798	1798	1798
14.2 Proper Shipping Name	Hydrochloric Acid Solution	Hydrochloric Acid Solution	Hydrochloric Acid Solution
14.3 Transport hazard class	8	8	8
14.4 Packing Group	II	II	II
14.5 Subsidiary risk(s)	None Allocated	None Allocated	None Allocated
14.6 Environmental Hazard	Not Applicable	Not Applicable	Not Applicable
14.7 Hazchem Code	2R	2R	2R

14.8 Transport in bulk according to Annex II of MARPOL and the IBC code

N/A

15. REGULATORY INFORMATION**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****HYDROCHLORIC ACID(7647-01-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

Australia Exposure Standards	Australia Inventory of Chemical Substances (AICS)
Australia Hazardous Substances Information System - Consolidated Lists	International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

WATER(7732-18-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards	Australia Inventory of Chemical Substances (AICS)
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16. OTHER INFORMATION**Definitions and abbreviations**

PC – TWA: Permissible Concentration-Time Weighted Average
 PC – STEL: Permissible Concentration-Short Term Exposure Limit
 IARC: International Agency for Research on Cancer
 ACGIH: American Conference of Governmental Industrial Hygienists
 STEL: Short Term Exposure Limit
 TEEL: Temporary Emergency Exposure Limit.
 IDLH: Immediately Dangerous to Life or Health Concentrations
 OSF: Odour Safety Factor
 NOAEL :No Observed Adverse Effect Level
 LOAEL: Lowest Observed Adverse Effect Level

TLV: Threshold Limit Value
 LOD: Limit Of Detection
 OTV: Odour Threshold Value
 BCF: BioConcentration Factors
 BEI: Biological Exposure Index