EFF-ERAYZA™

Dry-Treat

Chemwatch Hazard Alert Code: **3**

Chemwatch: **4965-91**
Version No: **5.1.1.1**
Safety Data Sheet (Conforms to Regulations (EC) No 453/2010)

Issue Date: **30/01/2015**
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Initial Date: **Not Available**
S.REACH.GBR.EN

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1.Product Identifier

Product name	EFF-ERAYZA™
Chemical Name	Not Applicable
Synonyms	Efflorescence, lime scale and hard water deposits remover
Proper shipping name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (contains urea hydrochloride)
Chemical formula	Not Applicable
Other means of identification	Not Available
CAS number	Not Applicable
EC number	Not Applicable
Index number	Not Applicable
REACH registration number	Not Applicable

1.2.Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Efflorescence, lime scale and hard water deposits remover.
Uses advised against	Not Applicable

1.3.Details of the manufacturer/importer

Registered company name	Dry-Treat	Dry-Treat	Dry-Treat
Address	3 North Street Oatby LE2 5AH Leicester United Kingdom	65 Nicholson Street St. Leonards 2065 NSW Australia	1104 Philadelphia Pike Willmington 19809 DE United States
Telephone	0800 0964 760	1800 675 119	+1 866 667 5119
Fax	+61 2 9954 3162	+61 2 9954 3162	+61 2 9954 3162
Website	Not Available	Not Available	Not Available
Email	Not Available	Not Available	Not Available

1.4.Emergency telephone number

Association / Organisation	Not Available	Not Available	Not Available
Emergency telephone numbers	0800 0964 760	Outside USA +1 (813) 248 0585	(800) 255 3924
Other emergency telephone numbers	Outside USA +1 (813) 248 0585	Outside USA +1 (813) 248 0585	Outside USA +1 (813) 248 0585

CHEMWATCH EMERGENCY RESPONSE

Primary Number	Alternative Number 1	Alternative Number 2
+800 2436 2255	+612 9186 1132	Not Available

Once connected and if the message is not in your prefered language then please dial 01

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SECTION 2 HAZARDS IDENTIFICATION

2.1.Classification of the substance or mixture

Considered a dangerous mixture according to Directive 1999/45/EC, Reg. (EC) No 1272/2008 (if applicable) and their amendments. Classified as Dangerous Goods for transport purposes.

CHEMWATCH HAZARD RATINGS

		Min	Max
Flammability	1		
Toxicity	1		
Body Contact	3		
Reactivity	1		
Chronic	0		

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

DSD classification	In case of mixtures, classification has been prepared by following DPD (Directive 1999/45/EC) and CLP Regulation (EC) No 1272/2008 regulations
DPD classification [1]	R37/38 Irritating to respiratory system and skin. R41 Risk of serious damage to eyes.
Legend:	*1. Classified by Chemwatch; 2. Classification drawn from EC Directive 67/548/EEC - Annex I ; 3. Classification drawn from EC Directive 1272/2008 - Annex VI*
Classification according to regulation (EC) No 1272/2008 [CLP] [1]	Metal Corrosion Category 1, Skin Corrosion/Irritation Category 2, Serious Eye Damage Category 1, STOT - SE (Resp. Irr.) Category 3
Legend:	*1. Classified by Chemwatch; 2. Classification drawn from EC Directive 67/548/EEC - Annex I ; 3. Classification drawn from EC Directive 1272/2008 - Annex VI*

2.2. Label elements

CLP label elements

SIGNAL WORD	**DANGER**

Hazard statement(s)

H290	May be corrosive to metals
H315	Causes skin irritation
H318	Causes serious eye damage
H335	May cause respiratory irritation

Supplementary statement(s)

Not Applicable

Precautionary statement(s) Prevention

P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P234	Keep only in original container.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.

Precautionary statement(s) Response

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/physician/first aider
P390	Absorb spillage to prevent material damage.
P302+P352	IF ON SKIN: Wash with plenty of water and soap
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P332+P313	If skin irritation occurs: Get medical advice/attention.

Continued...

P362+P364	Take off contaminated clothing and wash it before reuse.

Precautionary statement(s) Storage

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

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised chemical landfill or if organic to high temperature incineration

DSD / DPD label elements

Relevant risk statements are found in section 2.1

Indication(s) of danger	Xi

SAFETY ADVICE

S23	Do not breathe gas/fumes/vapour/spray.
S24	Avoid contact with skin.
S25	Avoid contact with eyes.
S26	In case of contact with eyes, rinse with plenty of water and contact Doctor or Poisons Information Centre.
S37	Wear suitable gloves.
S39	Wear eye/face protection.
S40	To clean the floor and all objects contaminated by this material, use water.
S46	If swallowed, seek medical advice immediately and show this container or label.
S56	Dispose of this material and its container at hazardous or special waste collection point.
S64	If swallowed, rinse mouth with water (only if the person is conscious).

2.3. Other hazards

	Ingestion may produce health damage*.
	Cumulative effects may result following exposure*.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

3.1.Substances

See 'Composition on ingredients' in Section 3.2

3.2.Mixtures

1.CAS No 2.EC No 3.Index No 4.REACH No	%[weight]	Name	Classification according to directive 67/548/EEC [DSD]	Classification according to regulation (EC) No 1272/2008 [CLP]
1.506-89-8 2.208-059-6 3.Not Available 4.Not Available	>50	urea hydrochloride	R34, R41 [1]	Metal Corrosion Category 1, Skin Corrosion/Irritation Category 1B, Serious Eye Damage Category 1; H290, H314, H318 [1]
	balance	ingredients not contributing to the classification		

Legend:	*1. Classified by Chemwatch; 2. Classification drawn from EC Directive 67/548/EEC - Annex I; 3. Classification drawn from EC Directive 1272/2008 - Annex VI 4. Classification drawn from C&L*

SECTION 4 FIRST AID MEASURES

4.1. Description of first aid measures

General	▸ If swallowed do **NOT** induce vomiting.

Continued...

	▸ 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. ▸ 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. 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. If skin contact occurs: ▸ Immediately remove all contaminated clothing, including footwear. ▸ Flush skin and hair with running water (and soap if available). ▸ Seek medical attention in event of irritation.
Eye Contact	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 Contact	If skin contact occurs: ▸ Immediately remove all contaminated clothing, including footwear. ▸ Flush skin and hair with running water (and soap if available). ▸ Seek medical attention in event of irritation.
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 doctor, without delay.
Ingestion	▸ 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.

4.2 Most important symptoms and effects, both acute and delayed

	See Section 11

4.3. Indication of any 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 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:

Continued...

- 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 conjuctival 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 FIREFIGHTING MEASURES

5.1. Extinguishing media

	▸ Water spray or fog. ▸ Foam. ▸ Dry chemical powder. ▸ BCF (where regulations permit). ▸ Carbon dioxide.

5.2. Special hazards arising from the substrate or mixture

Fire Incompatibility	▸ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

5.3. Advice for firefighters

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.
Fire/Explosion Hazard	▸ Combustible. ▸ Slight fire hazard when exposed to heat or flame. ▸ 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 acrid smoke and corrosive fumes. Combustion products include: carbon monoxide (CO) carbon dioxide (CO_2) hydrogen chloride phosgene nitrogen oxides (NO_x) other pyrolysis products typical of burning organic material

SECTION 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 and material for containment and cleaning up

Minor Spills	▸ Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material. ▸ Check regularly for spills and leaks. ▸ 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.
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. ▸ Consider evacuation (or protect in place). ▸ Stop leak if safe to do so. ▸ Contain spill with sand, earth or vermiculite.

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6.4. Reference to other sections

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

SECTION 7 HANDLING AND STORAGE

7.1. Precautions for safe handling

Safe handling	▸ **DO NOT** allow clothing wet with material to stay in contact with skin ▸ Avoid all personal contact, including inhalation. ▸ Wear protective clothing when risk of exposure occurs. ▸ Use in a well-ventilated area. ▸ Avoid contact with moisture. ▸ Avoid contact with incompatible materials. ▸ When handling, **DO NOT** eat, drink or smoke. ▸ Keep containers securely sealed when not in use.
Fire and explosion protection	See section 5
Other information	▸ Store in original containers. ▸ Keep containers securely sealed. ▸ Store in a cool, dry, well-ventilated area. ▸ Store away from incompatible materials and foodstuff containers. ▸ Protect containers against physical damage and check regularly for leaks. ▸ Observe manufacturer's storage and handling recommendations contained within this MSDS.

7.2. Conditions for safe storage, including any incompatibilities

Suitable container	▸ **DO NOT** use aluminium or galvanised containers ▸ Check regularly for spills and leaks ▸ Lined metal can, lined metal pail/ can. ▸ Plastic pail. ▸ Polyliner drum. ▸ Packing as recommended by manufacturer. ▸ Check all containers are clearly labelled and free from leaks. For low viscosity materials ▸ Drums and jerricans must be of the non-removable head type. ▸ Where a can is to be used as an inner package, the can must have a screwed enclosure.
Storage incompatibility	▸ Reacts with mild steel, galvanised steel / zinc producing hydrogen gas which may form an explosive mixture with air. ▸ Segregate from alkalies, oxidising agents and chemicals readily decomposed by acids, i.e. cyanides, sulfides, carbonates. ▸ Avoid strong bases.

PACKAGE MATERIAL INCOMPATIBILITIES

Not Available

7.3. Specific end use(s)

See section 1.2

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

DERIVED NO EFFECT LEVEL (DNEL)

Not Available

PREDICTED NO EFFECT LEVEL (PNEC)

Not Available

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
EFF-ERAYZA™	Not Available	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH

Continued...

urea hydrochloride	Not Available	Not Available

8.2. Exposure controls

8.2.1. Appropriate 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 overexposure.
8.2.2. Personal protection	
Eye and face protection	‣ Chemical goggles. ‣ Full face shield may be required for supplementary but never for primary protection of eyes. ‣ 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.
Skin protection	See Hand protection below
Hands/feet protection	‣ Wear chemical protective gloves, e.g. PVC. ‣ Wear safety footwear or safety gumboots, e.g. Rubber ‣ When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots. The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and.has to be observed when making a final choice. Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: ‣ frequency and duration of contact, ‣ chemical resistance of glove material, ‣ glove thickness and ‣ dexterity Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).
Body protection	See Other protection below
Other protection	‣ Overalls. ‣ PVC Apron. ‣ PVC protective suit may be required if exposure severe. ‣ Eyewash unit. ‣ Ensure there is ready access to a safety shower.
Thermal hazards	Not Available

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:
"Forsberg Clothing Performance Index".
The effect(s) of the following substance(s) are taken into account in the ***computer-generated*** selection:
EFF-ERAYZA™

Material	CPI
BUTYL	A
PE/EVAL/PE	A
SARANEX-23	A
NEOPRENE	B
NITRILE	B
PVC	B
NAT+NEOPR+NITRILE	C

Respiratory protection

Type AB-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.
Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	AB-AUS P2	-	AB-PAPR-AUS / Class 1 P2
up to 50 x ES	-	AB-AUS / Class 1 P2	-
up to 100 x ES	-	AB-2 P2	AB-PAPR-2 P2 ^

^ - Full-face

Continued...

NATURAL RUBBER	C
PVA	C

* CPI - Chemwatch Performance Index
A: Best Selection
B: Satisfactory; may degrade after 4 hours continuous immersion
C: Poor to Dangerous Choice for other than short term immersion
NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -
* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

8.2.3. Environmental exposure controls

See section 12

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Coloured liquid with a characteristic odour; mixes with water. VOC: 0.5%

Physical state	Liquid	**Relative density (Water = 1)**	1.205
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Available
pH (as supplied)	<1	**Decomposition temperature**	Not Available
Melting point / freezing point (°C)	Not Available	**Viscosity (cSt)**	Not Available
Initial boiling point and boiling range (°C)	100	**Molecular weight (g/mol)**	Not Applicable
Flash point (°C)	Not Available	**Taste**	Not Available
Evaporation rate	Not Available	**Explosive properties**	Not Available
Flammability	Not Available	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Available	**Surface Tension (dyn/cm or mN/m)**	Not Available
Lower Explosive Limit (%)	Not Available	**Volatile Component (%vol)**	Not Available
Vapour pressure (kPa)	2.3 @ 20 degC	**Gas group**	Not Available
Solubility in water (g/L)	Miscible	**pH as a solution(1%)**	Not Available
Vapour density (Air = 1)	Not Available	**VOC g/L**	Not Available

9.2. Other information

	Not Available

SECTION 10 STABILITY AND REACTIVITY

10.1.Reactivity	See section 7.2
10.2.Chemical stability	‣ Contact with alkaline material liberates heat
10.3. Possibility of hazardous reactions	See section 7.2
10.4. Conditions to avoid	See section 7.2
10.5. Incompatible materials	See section 7.2

Continued...

10.6. Hazardous decomposition products	See section 5.3

SECTION 11 TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Inhaled	Not normally a hazard due to non-volatile nature of product The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.
Ingestion	Considered an unlikely route of entry in commercial/industrial environments Ingestion may result in nausea, abdominal irritation, pain and vomiting
Skin Contact	This material can cause inflammation of the skin on contact in some persons. 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.
Eye	If applied to the eyes, this material causes severe eye damage.
Chronic	Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. 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. 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 cause dermatitis.

	TOXICITY	IRRITATION
EFF-ERAYZA™	Not Available	Not Available
urea hydrochloride	TOXICITY	IRRITATION
	Not Available	Not Available

Not available. Refer to individual constituents.

UREA HYDROCHLORIDE	No significant acute toxicological data identified in literature search. 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. Furthermore, exposures to low pH in vivo differ from exposures *in vitro* in that, *in vivo*, only a portion of the cell surface is subjected to the adverse conditions, so that perturbation of intracellular homeostasis may be maintained more readily than in vitro. Asthma-like symptoms may continue for months or even years after exposure to the material ceases.

Acute Toxicity	⊘	**Carcinogenicity**	⊘
Skin Irritation/Corrosion	✔	**Reproductivity**	⊘
Serious Eye Damage/Irritation	✔	**STOT - Single Exposure**	✔
Respiratory or Skin sensitisation	⊘	**STOT - Repeated Exposure**	⊘
Mutagenicity	⊘	**Aspiration Hazard**	⊘

Legend: ✔ *– Data required to make classification available*
✘ *– Data available but does not fill the criteria for classification*
⊘ *– Data Not Available to make classification*

Continued...

CMR STATUS

Not Applicable

SECTION 12 ECOLOGICAL INFORMATION

12.1. Toxicity

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
Prevent, by any means available, spillage from entering drains or water courses.
DO NOT discharge into sewer or waterways.

12.2. Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
	No Data available for all ingredients	No Data available for all ingredients

12.3. Bioaccumulative potential

Ingredient	Bioaccumulation
	No Data available for all ingredients

12.4. Mobility in soil

Ingredient	Mobility
	No Data available for all ingredients

12.5.Results of PBT and vPvB assessment

	P	B	T
Relevant available data	Not Available	Not Available	Not Available
PBT and vPvB Criteria fulfilled?	Not Available	Not Available	Not Available

12.6. Other adverse effects

No data available

SECTION 13 DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Product / Packaging disposal	Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. A Hierarchy of Controls seems to be common - the user should investigate: ▸ Reduction ▸ Reuse ▸ Recycling ▸ Disposal (if all else fails) This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.
Waste treatment options	Not Available
Sewage disposal options	Not Available

SECTION 14 TRANSPORT INFORMATION

Labels Required

	
Marine Pollutant	NO

Continued...

HAZCHEM	2X

Land transport (ADR)

14.1. UN number	None
14.2. Packing group	None
14.3. UN proper shipping name	None
14.4. Environmental hazard	No relevant data
14.5. Transport hazard class(es)	Class: None Subrisk: None
14.6. Special precautions for user	None None

Air transport (ICAO-IATA / DGR)

14.1. UN number	3265
14.2. Packing group	III
14.3. UN proper shipping name	Corrosive liquid, acidic, organic, n.o.s. * (contains urea hydrochloride)
14.4. Environmental hazard	No relevant data
14.5. Transport hazard class(es)	ICAO/IATA Class: 8 ICAO / IATA Subrisk: Not Applicable ERG Code: 8L
14.6. Special precautions for user	Special provisions: A3A803 Cargo Only Packing Instructions: 856 Cargo Only Maximum Qty / Pack: 60 L Passenger and Cargo Packing Instructions: 852 Passenger and Cargo Maximum Qty / Pack: 5 L Passenger and Cargo Limited Quantity Packing Instructions: Y841 Passenger and Cargo Limited Maximum Qty / Pack: 1 L

Sea transport (IMDG-Code / GGVSee)

14.1. UN number	3265
14.2. Packing group	III
14.3. UN proper shipping name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (contains urea hydrochloride)
14.4. Environmental hazard	No relevant data
14.5. Transport hazard class(es)	IMDG Class: 8 IMDG Subrisk: Not Applicable
14.6. Special precautions for user	EMS Number: F-A , S-B Special provisions: 223 274 Limited Quantities: 5 L

Inland waterways transport (ADN)

14.1. UN number	3265
14.2. Packing group	III
14.3. UN proper shipping name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (contains urea hydrochloride)

Continued...

14.4. Environmental hazard	No relevant data
14.5. Transport hazard class(es)	8 | Not Applicable
14.6. Special precautions for user	Classification code: C3 Limited quantity: 5 L Equipment required: PP, EP Fire cones number: 0

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

Not Applicable
DOT Remarks: Corrosive to Aluminium, Excepted per 49CFR 173.154(d)(1).
[Manufacturer]

SECTION 15 REGULATORY INFORMATION

15.1. Safety, health and environmental regulations / legislation specific for the substance or mixture

urea hydrochloride(506-89-8) is found on the following regulatory lists	"EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)","European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Lithuanian)","European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Slovenian)","European Customs Inventory of Chemical Substances ECICS (English)","European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (French)","European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Polish)","European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Slovak)","European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Swedish)","European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Italian)","European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Maltese)","International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs","European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Danish)","European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Latvian)","European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (English)","European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)","European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (German)","European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Finnish)","UK Workplace Exposure Limits (WELs)","European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Spanish)","European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI","European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Romanian)","European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Portuguese)","European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Czech)","European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Greek)","European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances - updated by ATP: 31","European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Hungarian)","European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Dutch)","European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Estonian)","European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (Bulgarian)"

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - : 67/548/EEC, 1999/45/EC, 98/24/EC, 92/85/EC, 94/33/EC, 91/689/EEC, 1999/13/EC, Regulation (EU) No 453/2010, Regulation (EC) No 1907/2006, Regulation (EC) No 1272/2008 and their amendments as well as the following British legislation: - The Control of Substances Hazardous to Health Regulations (COSHH) 2002 - COSHH Essentials - The Management of Health and Safety at Work Regulations 1999

15.2. Chemical safety assessment

For further information please look at the Chemical Safety Assessment and Exposure Scenarios prepared by your Supply Chain if available.

ECHA SUMMARY

Ingredient	CAS number	Index No	ECHA Dossier
urea hydrochloride	506-89-8	Not Available	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Acute Tox. 4, Skin Corr. 1B	GHS05, Dgr	H302, H314
2	Acute Tox. 4, Skin Corr. 1B, STOT SE 3, Eye Dam. 1	GHS05, Dgr, Wng	H302, H314, H319, H335, H351

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

SECTION 16 OTHER INFORMATION

Continued...

Full text Risk and Hazard codes

H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H319	Causes serious eye irritation
H351	Suspected of causing cancer

R34	Causes burns.

Other information

Ingredients with multiple cas numbers

Name	CAS No
urea hydrochloride	24926-13-4, 506-89-8

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.
A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references

The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:
EN 166 Personal eye-protection
EN 340 Protective clothing
EN 374 Protective gloves against chemicals and micro-organisms
EN 13832 Footwear protecting against chemicals
EN 133 Respiratory protective devices