SAFETY DATA SHEET

In compliance with:

- the EC Regulations No. 1907/2006, No. 1272/2008 and EU. 453/2010 (Annex I);
- the approved *Code of Practice*, under section 274 of the *Work Health and Safety Act* (the Australian WHS Act)
- the *Globally Harmonized System of Classification and Labelling of Chemicals* (GHS), Rev. 6 (2015)

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

1.1. Product identifiers

Name of the Mixture	**Ecas4 Catholyte**
Other means of identification, if available	Electrochemically activated alkaline solution

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

Identified uses	Mild detergent
Uses advised against	There are no uses advised against

1.3. Details of the supplier of the safety data sheet

Supplier / Distributor	**Ecas4 Australia Pty Ltd**	
	Address:	Unit 8 / 1 London Road, Mile End, South Australia 5031
	Telephone:	08 8122 7166
	Fax:	08 8152 0321
Competent person for the compilation of Safety Data Sheet: **sergio@ecas4.com.au** (Dr Sergio Ferro)		

1.4. Emergency telephone number

Phone # (office hours)	08 8122 7166

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

In accordance with Regulations mentioned in the introduction, the mixture is classified as NON-HAZARDOUS.

Hazard Class	*Class Codes and hazard category*	*Hazard statement codes*	*Hazard statements*
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Major adverse effects

Health effects: Ingestion: swallowing of the solution may cause irritation to the throat and digestive tract
Skin contact: may be irritating
Eye contact: may be irritating
Inhalation exposure: vapours can cause dizziness and nausea
Sensitization: No adverse effects expected

Effects on the environment: Not relevant

2.2. Label elements

Label elements, in accordance with Regulation (EC) No. 1272/2008:

Pictogram	none
Signal word	none
Hazard statement(s)	none
Precautionary statement(s) - Prevention - Response - Storage - Disposal	None - - - -
Additional information:	**EUH 210:** Safety data sheet available on request

Safety precautions: Keep out of the reach of children
Avoid contact with eyes. Avoid breathing vapours / spray.
If medical advice is needed, make available to the container or the label of the product.
Store in a dry, clean and ventilated place, protected from sunlight and heat sources.

2.3. Other hazards (not relevant for the classification)

The mixture meets the criteria for:	YES	NO
- PBT		X
- vPvB		X

Hazards for humans: The Ecas4 Catholyte may cause eye irritation, skin sensitisation, and throat discomfort. When the solution is kept in a closed container, it is not recommended to sniff or inhale its vapours.

Environmental hazards: There are no other environmental hazards.

Dangers related to the physico-chemical characteristics: None

Specific effects: H290, May be corrosive to metals

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

The Ecas4 Catholyte (*the mixture*) is a diluted aqueous solution of sodium chloride, with an alkaline pH (pH 12.0 ± 0.5).
The mixture does not contain dangerous substances.

Description of ingredients	% (~)	EINECS Number	CAS Number	LD_{50} of the Ingredient	Specie and administration
Water	99.4%	231-791-2	7732-18-5	> 90000 mg/kg	Rat, oral
Sodium Chloride	0.5%	231-598-3	7647-14-5	3000 mg/kg	Rat, oral
Sodium Hydroxide	<0.1%	15-185-5	1310-73-2	6600 mg/kg	Rat, oral

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General advice: No special measures required.
In case of eye contact: Rinse thoroughly with plenty of water. Get medical attention if irritation persists.
In case of skin contact: Remove contaminated clothing, including shoes, and wash thoroughly the affected skin with water. Consult a physician if irritation persists. Wash contaminated clothing before reuse.
If swallowed: **DO NOT** induce vomiting: give plenty of water to rinse the throat and dilute. Consult a physician if feeling unwell.
If inhaled: Bring immediately to fresh air. In case of persistent dizziness or nausea, consult a physician.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms and effects, both acute and delayed: In case of contact with eyes, may cause a burning sensation and red eyes.
If swallowed, may cause heartburn and abdominal pain.
No known symptoms and delayed effects.

4.3. Indication of any immediate medical attention and special treatment needed

Medical monitoring: To be made in the case of known delayed effects.
Known antidotes: Not required.
Contraindications: None.
Immediate specific treatment: In case of contact with eyes, rinse immediately with water.
If swallowed, drink water. **DO NOT** give alcohol.

SECTION 5: FIRE-FIGHTING MEASURES

It does not apply, as the Ecas4 Catholyte is composed of water for more than 99% (non-combustible material).

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Minimise the exposure to the product (see Section 8). In case of accidental contact, dilute with water.

6.2. Environmental precautions

The Ecas4 Catholyte is a biodegradable solution, with no potential risks to the environment.

6.3. Methods and materials for containment and cleaning up

Collect the liquid with absorbent material (paper, sand, universal binder, sawdust).
No special precautions are required for the disposal of the contaminated material.

6.4. Reference to other Sections

See also Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

NO special precautions required. In the area where the solution is produced, it is appropriate to ensure a good ventilation.

7.1. Precautions for safe handling

Handling recommendations:	For those with very sensitive skin, it may be advisable to wear gloves. Avoid contact with materials/substances incompatible. DO NOT use in combination with acids.
Occupational Health Recommendations:	DO NOT eat, drink and smoke in work areas. Remove contaminated clothing before entering areas where you eat.

7.2. Conditions for safe storage, including any incompatibilities

The modalities of risk management reported in this Section depend on the classification that results from the properties listed in Section 9. The mixture is **NOT** classified for any chemical-physical properties and does not provide for any particular method of risk management.

Recommendations for storage:	Store away from light and in sealed containers, airtight, opaque HDPE or glass. Make sure that the container is properly labelled. DO NOT store together with acids.

7.3. Specific end use(s)

Recommendation for end-use(s):	Avoid direct eye contact and inhalation of vapours

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Avoid prolonged contact with skin. Use good personal hygiene practices. The Ecas4 Catholyte does not constitute danger to the safety of operator or animals. The accumulation of vapours should be prevented, especially in environments with poor ventilation; mechanical suction may be appropriate in such situations.

8.1. Control parameters

Occupational Exposure Limits:	Not available
Environmental monitoring procedures:	The measurements of chemical agents in workplace atmospheres should be performed with standardised methods (e.g. UNI EN 689:1997 Workplace Atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy; UNI EN 482:2006 Workplace Atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) or, in their absence, with appropriate methods.

Components with limit values that require monitoring at workplace:
1310-73-2 Sodium Hydroxide – TLV-TWA Ceiling Limit: 2 mg/m3

8.2. Exposure controls

Under normal conditions of use, there is **NO** need to apply specific exposure control measures. Provide adequate ventilation in the place of use.

Eye/face protection	**NO** special protection required during normal use of the product; in case of manipulation of large quantities, wear eye protection.
Skin protection	**NO** special protection required during normal use of the product; in case of prolonged contact and manipulation of large quantities, wear protective gloves made of latex or rubber.
Respiratory protection	**NO** special protection required during normal use of the product; in case of handling of large quantities and in situations of inadequate ventilation in the production area, with consequent possibility of accumulation of vapours, wear suitable breathing equipment.
Environmental exposure controls	**NO** special precautions are required.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance:	Homogeneous, clear, transparent liquid (like water)
Colour:	Colourless
Odour:	Mild saline odour
pH:	12.0 ± 0.5
Melting point / freezing point:	about 0 °C
Initial boiling point and boiling range:	about 100 °C
Flash point:	not applicable
Evaporation rate:	no data available
Upper/lower flammability or explosive limits:	not applicable
Vapour pressure:	~ 17.5 hPa at 20 °C
Vapour density:	between 1.001 and 1.009
Relative density:	about 1.000 g/cm3 at 25 °C
Water solubility:	Completely soluble
Partition coefficient: n-octanol/water:	no data available
Auto-ignition temperature:	not applicable
Decomposition temperature:	no data available
Viscosity:	no data available
Explosive properties:	not explosive

9.2. Other safety information

No data available

SECTION 10: STABILITY AND REACTIVITY

The Ecas4 Catholyte is stable under normal ambient temperature and pressure conditions. If properly stored (in sealed containers, watertight, made of HDPE or opaque glass, and preferably at temperatures between 5 and 10 °C), the mixture maintains its characteristics for a period up to 2 months.

10.1. Reactivity

Avoid contact with strong acids and reactive metals.

10.2. Chemical stability

As a dilute aqueous solution, the Ecas4 Catholyte is stable under the normal conditions of temperature and pressure and in unopened containers stored in a cool, ventilated place.

10.3. Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

10.4. Conditions to avoid

The solution can degrade / decompose if stored improperly. **DO NOT** expose to direct sunlight and to heat sources.
DO NOT mix with other products. Avoid contact with acids.

10.5. Incompatible materials

Reactive metals in general.

10.6. Hazardous decomposition products

There are no known hazardous decomposition products.

SECTION 11: TOXICOLOGICAL INFORMATION

Routes of exposure:	YES	NO
Inhalation:	X	
Ingestion:	X	
Skin contact:	X	
Eye contact:	X	

Symptoms and effects for each route of exposure:

Inhalation:	breathing in mists or aerosols may produce respiratory irritation
Ingestion:	large amounts may cause heartburn, nausea or abdominal pain
Skin contact:	contact with skin may result in irritation
Eye contact:	contact may cause a burning sensation and redness of the eye

Toxicokinetic effects (Absorption, Distribution, Metabolism, Excretion):
Alkaline species seep slowly through the skin.
The major route of excretion of sodium hydroxide is via urine; small amounts have been found in faeces, sweat, tears, nasal mucous, saliva, vagina and in the urethral discharge.

Toxicological information on hazardous components (sodium hydroxide):
Acute toxicity:

Oral:	LD_0 (rabbit) > 500 mg/kg LD_{50} (rat) > 20,000 mg/kg
Dermal:	LD_{50} (rat) > 5,000 mg/kg
Inhalation:	Not available
Further information	The toxic effects in humans depend on the concentration of the solution. Ingestion of small quantities of the Ecas4 Catholyte may cause mild digestive disorders.
Corrosion / irritation:	The Ecas4 Catholyte may cause mild irritation.
Serious eye damage / eye irritation:	Based on the assessment of the available data, including those deriving from human exposure, there is a low risk of marked irritating effects due to accidental exposure to the Ecas4 Catholyte.
Sensitization:	No irritant effects
Additional toxicological information:	According to the calculation method of the General Guidelines of EU on Classification of Preparations as issued in its latest version, the Ecas4 Catholyte is *not classifiable*

Aspiration hazard: Based on the typical uses of the mixture, no aspiration dangers are expected.

Reason for the failure to classify:
The mixture cannot be classified in a particular hazard class due to the lack of data, the availability of information / data inconclusive or insufficient for classification according to the criteria laid down in the regulations mentioned in this SDS.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Toxicity to aquatic organisms (short-term effects and long-term effects):
It may cause localised variations in pH endangering the aquatic life.

12.2. Bioaccumulative potential

Considering the great water solubility of NaOH, a significant bioconcentration of this species in organisms is not expected.

12.3. Persistence and degradability

There is no bioaccumulation.

12.4. Mobility in soil

Sodium hydroxide is very soluble and mobile in water. In the soil, its mobility depends on the amount of liquid phase present and the possibility to form hydroxides with metal ions present.

12.5. Results of PBT and vPvB assessment

The Ecas4 Catholyte is not persistent, nor bioaccumulative.

12.6. Other adverse effects

No other adverse effects are expected.

SECTION 13: DISPOSAL CONSIDERATIONS

NO special precautions required. Dilution with water can be taken into account. Where permitted, the solution may be disposed of into the sewer system without negative effects.
Dispose of containers and unused product in accordance with regulations.

13.1. Waste treatment methods

	Incineration	Recycling	Landfilling
Substance wastes:	X		
Contaminated packaging	X	X	

Refer to the Community / National / Local provisions for waste disposal.

SECTION 14: TRANSPORT INFORMATION

The mixture does not fall within the scope of the transport legislation (**NON**-DANGEROUS GOODS).
The product is normally produced and consumed locally (on-site), and is classified as **non**-hazardous.
We recommend the use of dark containers, in order to protect the product from light.

SECTION 15: REGULATORY INFORMATION

Below is some information on the regulations for the mixture that have not been already provided in the safety data sheet.

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

- Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work, and subsequent amendments and national implementations.
- Council Directive 89/686/EEC of 21 December 1989 on the approximation of the laws of the Member States relating to personal protective equipment, and subsequent amendments and national implementations.
- Council Directive 98/24/EEC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work (fourteenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC)

15.2. Chemical Safety Assessment

Specific provisions for the product: refer to Sections 1, 2, 3 and 4.

SECTION 16: OTHER INFORMATION

The Ecas4 Catholyte is an alternative, clean and ecological detergent solution, suitable for use on most surfaces, both inside and outside. The information contained herein is based on data (current state of knowledge and experience) considered accurate at the time of publication and are provided for free. The document is intended to describe the product only to health and safety requirements. Therefore, it shall not be interpreted as a guarantee of any specific quality for the product; these qualities depend on the conditions of the test or sale contract. It is the user's responsibility to safely use the product, checking its suitability, and to proceed to a proper disposal.

NO DECLARATIONS OR WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUALITY, OR OF ANY OTHER NATURE ARE MADE WITH RESPECT TO THIS INFORMATION AND TO THE PRODUCT TO WHICH THIS INFORMATION REFERS.

The information contained in this SDS are in accordance with the provisions of Regulation (EC) No. 1907/2006 and subsequent amendments.

Abbreviations and acronyms

- CAS: Chemical Abstract Service (division of the American Chemical Society
- LD_0: Dose that does not cause any mortality of the population
- LD_{50}: median lethal dose causing death in 50% of individuals in the essay
- EINECS: European Inventory of Existing Commercial Chemical Substances
- PBT: Persistent, Bioaccumulative and Toxic
- TLV-STEL: Threshold Limit Value - Short Term Exposure Limit (15 minutes)
- TLV-TWA: Threshold Limit Value - Time Weight Average, weighted average concentration over time, on a conventional eight-hour workday and a 40-hour working week
- vPvB: very Persistent and very Bioaccumulative

Information relating to health, safety, and environmental protection in accordance with Regulation (EC) No 1272/2008 on hazardous components:

Full text of H-Statements referred to under Section 2:
H290 May be corrosive to metals

Classification and procedure used for its derivation in accordance with Regulation (EC) 1272/2008 (CLP), in relation to mixtures:

Classification in accordance with Regulation (EC) No. 1272/2008:	Classification procedure:
Not classified	

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