Dominant® | SAFETY DATA SHEET

Date of Issue: 20 December 2016

Caustic Soda

1. IDENTIFICATION OF MATERIAL AND SUPPLIER

Product Name	Caustic Soda, Caustic Mini Pearl, Sodium Hydroxide (Solid)
Code	40025, C13197, C12758
Product Use	Heavy duty CIP or soak cleaning
Company Name	Dominant (Australia) Pty Ltd (ABN 77007 583 315)
Address	12 Coglin Street, Brompton SA 5007, Australia
Telephone	1300 789 852 or +61 (8) 8245 6900
Facsimile	+ 61 (8) 8340 1626
Emergency Phone	13 11 26

2. HAZARDS IDENTIFICATION

GHS Classification	**Skin Corrosion 1** **Metal Corrosion 1**
Signal Word	**DANGER**
Hazard Statements	**Causes severe skin burns and eye damage** **May cause corrosion to metals.**
Precautionary Statements	Keep out of reach of children. Wear protective gloves/ protective clothing/ eye protection/face protection. Wash hands and face thoroughly after handling. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician. IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
Pictograms	

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3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Name	CAS	Proportion
	Sodium hydroxide	1310-73-2	99%
	Ingredients determined not to be hazardous	Not Required	Balance

4. FIRST AID MEASURES

Ingestion	Do NOT induce vomiting. If person is conscious give water to drink to dilute the caustic soda. Seek medical urgent attention.
Eye	Immediately flush eyes with copious amounts of water for at least 30 minutes while holding eyelids open. Take care not to rinse contaminated water into the non-affected eye. Washing must be started within 10 seconds of contact and continued for 30 minutes to prevent permanent injury. Seek immediate medical attention. An Ophthalmology consultation is a must.
Skin	Remove contaminated clothing. Immediately flush the contaminated skin thoroughly with water for at least 15 minutes. Seek urgent medical attention.
Inhaled	Seek urgent medical help. Remove victim from exposure to fresh air. Provide emergency airway support. Give 100% humidified supplemental oxygen with artificial respiration. If needed transport to emergency medical facility without delay.
First Aid Facilities	An eye wash and general washing facility should be available adjacent to the work area.
Advice to Doctor	Treat symptomatically based on judgement of doctor and individual reactions of patient. For advice contact a Poisons Information Centre. (Phone Australia 13 11 26; New Zealand 0800 764 766)
Medical Conditions Aggravated by Exposure	Persons with lung diseases may be at an increased risk due to the toxic effects of this chemical on these organs.

5. FIRE FIGHTING MEASURES

General Measures	Clear fire area of all non-emergency personnel. Stay upwind. Keep out of low areas. Eliminate ignition sources. Move fire exposed containers from fire area if it can be done without risk.
Fire and Explosion Hazard	Direct contact with water can produce a violent exothermic reaction.
Extinguishing Media	Product is not combustible. In case of fire, use appropriate extinguishing media most suitable for surrounding fire conditions. Use carbon dioxide or suitable dry chemical extinguisher. Do NOT use water.

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5. FIRE FIGHTING MEASURES (Continued)

Hazards from Combustion	Reacts with aluminium, tin, zinc and their alloys, copper, lead, etc. giving off hydrogen.
Precautions for Fire Fighters	Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves) or chemical splash suit. Please note: Structural fire fighters protective clothing is recommended for fire situations only, it is not effective in spills.
Special Fire Fighting Instructions	Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire fighting water for treatment.
Hazchem	2W

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Allow only trained personnel wearing appropriate protective equipment to be involved in spill response. Avoid accidents, clean up immediately. Increase ventilation. Avoid walking through spilled product as it is slippery when spilt. Isolate the danger area. Use clean, non-sparking tools and equipment. Shut off all possible sources of ignition.
Clean Up Procedures	Mechanically collect as much of the spill as possible. Absorb with sand, earth or clay. Transfer to suitable, labelled, corrosion-resistant containers and dispose of promptly as hazardous waste. Spill on areas other than pavement, dirt or sand may be handled by removing the affected soils and placing into approved containers.
Containment	Stop leak if safe to do so. Dike spills immediately.
Decontamination	Dilute acid (preferably acetic acid may be used to neutralise residual traces of caustic soda) after flushing.
Environmental Precautionary Measures	Do not allow product to reach drains, sewers or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Authority.
Evacuation Criteria	Evacuate all unnecessary personnel.

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7. HANDLING AND STORAGE (Continued)

Handling

Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling. Take precautionary measures against static discharges by bonding and grounding equipment. Avoid contact with eyes, skin and clothing. Do not inhale product vapours. Avoid prolonged or repeated exposure. Do not smoke, eat or drink when handling product. Product can react violently with water and acids. Caustic solution generates heat when further diluted with water. Concentrations greater than 40%, the heat generated can raise temperatures above the boiling point resulting in sporadic, violent eruptions or spattering. Emergency showers and eye-washes must be available. When used in its various applications, the product must be prevented from coming into uncontrolled direct contact with other products such as acids and metals. Never neutralise the solid product.

Storage

Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials as listed in section 10. Store away from aluminium, tin, zinc and alloys (bronzes), chrome and lead. Protect from damp and kept apart from acids, halogenated hydrocarbons, nitroparaffins, etc. The floor must be waterproof and anti-slip. A water supply or source must be provided in the place of storage. Emergency showers and eye-washes must be available. Special conditions: Prevent the product from becoming damp or aerated. Hygroscopic product. Becomes carbonated in contact with the air or moisture.

Container

Store in original packaging as approved by manufacturer. Recommended materials for warehouse storage and containers: Carbon steel, carbon steel drums, polythene sacks or Big-Bags.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Standards

The following exposure standards apply for ingredients
Sodium Hydroxide TWA 2mg/ m3 Peak Limitation
Human exposure:
DNEL (local effects): 1 mg/m^3 (inhalation; long-term toxicity)

Engineering Controls

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Adequate ventilation should be provided so that exposure limits are not exceeded.

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION (Continued)

Personal Protective Equipment	RESPIRATOR: In the case of sodium hydroxide powder emissions, use mask with dust filter (P2 or P3) (AS1715/1716). EYES: Use safety goggles, splash proof and / or appropriate full face shield (AS1336/1337). HANDS: Gloves for chemical hazards (AS2161). CLOTHING: Suit or plastic apron and safety footwear providing protection against acids (AS3765/2210).
Work Hygienic Practices	An eyewash fountain should be within the immediate work area for emergency use. Do not smoke, eat or drink when handling product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	White solid micropearls with no odour
Solubility in Water	Soluble in all proportions
pH	14
Vapour pressure	0 mm Hg at 20°C
Boiling point / melting point	1388°C @ 101325 Pa
Solubility	100g / 100g
Flash Point	Not available
Melting Point	Not available
Specific Gravity	2.13 (water = 1)
Additional characteristics	Flammability (solid, gas): Inorganic oxides in which the inorganic element is in its highest possible oxidation state are incapable of further reaction with oxygen and can thus be designated as non-flammable. Self-heating: The preliminary results exclude self-heating of the substance up to 400°C.
Fast or Intensely Burning Characteristics	Highly exothermal reaction with strong acids. Reacts dangerously with acetic acid, allyl chloride, chlorine trifluoride, chloroform, methylic alcohol, chloronitrotoluene, chlorosulphonic acid, glyoxal, cyanohydrin, hydrochloric acid, hydrofluoric acid, hydroquinone, nitric acid, sulphuric acid and oleum, nitropropane, phosphorous, propiolactone, phosphorous pentoxide, tetrachlorobenzene, tetrahydrofuran, etc. Caustic soda forms salts with nitromethane and nitroparaffins that explode on impact.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	Heat is generated when mixed with water. Spattering and boiling can occur. Caustic soda solution reacts readily with various reducing sugars (ie: fructose, glactose, maltose, dry whey solids) to produce carbon monoxide.
Reactions That Release Gases or Vapours	Reacts with aluminium, tin, zinc and their alloys, copper, lead, etc. giving off hydrogen.

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10. STABILITY AND REACTIVITY

General	Corrosive solid
Chemical Stability	The substance is stable under normal environmental conditions and foreseeable conditions of temperature and pressure during the storage and handling.
Conditions to Avoid	Do not expose to the elements for excessive periods, to prevent degradation of the container.
Materials to avoid	Highly exothermal reaction with strong acids. Aluminium, tin, zinc and their alloys, copper, lead, etc. Acetic acid, allyl chloride, chlorine trifluoride, chloroform, methylic alcohol, chloronitrotoluene, chlorosulphonic acid, glyoxal, cyanohydrin, hydrochloric acid, hydrofluoric acid, hydroquinone, nitric acid, sulphuric acid and oleum, nitropropane, phosphorous, propiolactone, phosphorous pentoxide, tetrachlorobenzene, tetrahydrofuran, nitromethane and nitroparaffins. Caustic soda forms salts with nitromethane and nitroparaffins that explode on impact. Caustic soda solution reacts readily with various reducing sugars (ie: fructose, glactose, maltose, dry whey solids) to produce carbon monoxide.
Hazardous Decomposition Products	Reacts with aluminium, tin, zinc and their alloys, copper, lead, etc. giving off hydrogen. When the product decomposes, toxic sodium oxide gases are given off.

11. TOXICOLOGICAL INFORMATION

General Information

Specific target organ toxicity □□repeated exposure: Corrosive substance. In addition, the substance is not expected to be systemically available in the body under normal handling and use conditions and therefore systemic effects of the substance after repeated exposure are not expected to occur.

CMR effects (carcinogenity, mutagenicity and toxicity for reproduction): Carcinogenicity: The substance did not induce mutagenicity in in vitro and in vivo studies (EU RAR, 2007). Systemic carcinogenicity is not expected to occur because the substance is not expected to be systemically available in the body under normal handling and use conditions.

Germ cell mutagenicity: Both the in vitro and the in vivo genetic toxicity tests indicated no evidence of mutagenic activity. Furthermore the substance is not expected to be systemically available in the body under normal handling and use conditions and for this reason additional testing is considered unnecessary (EU RAR, 2007).

Reproductive toxicity: The substance is not expected to be systemically available in the body under normal handling and use conditions and for this reason it can be stated that the substance will not reach the foetus nor reach male and female reproductive organs.

Reproductive toxicity, effects on or via lactation: The substance is not expected to be systemically available in the body under normal handling and use conditions and for this reason additional testing is considered unnecessary.

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11. TOXICOLOGICAL INFORMATION (continued)

Ingestion	Causes severe burns. Burns to the mouth, esophagus, can cause intestinal perforation.
Eye	Causes severe burns. Can cause ulceration of the conjunctiva and cornea.
Skin	Causes severe burns. Intense burning and ulcers penetrating the skin.
Inhalation	Causes severe burns. Irritation of the respiratory system.
Toxicological Data	Animal Toxicity: Oral LDLO Rabbit: 500 mg/kg Skin, Rabbit, Adult, 500 mg/24h Severe irritation Eye, Rabbit, Adult 50mg/24h Severe irritation Intra peritoneal, Mouse, LD50 40mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity

The hazard of the substance for the environment is caused by the hydroxyl ion (pH effect). For this reason the effect of the substance on the organisms depends on the buffer capacity of the aquatic or terrestrial ecosystem. The high water solubility and low vapour pressure indicate that the substance will be found predominantly in water. Also the variation in acute toxicity for aquatic organisms can be explained for a significant extent by the variation in buffer capacity of the test medium. LC50 values ranged between 33 and 189 mg/l.

Acute toxicity to fish
LC50 (lethal concentration, 50%): All available tests resulted in a range of toxicity values between 35 to 189 mg/l. However, in the majority of these test reports there were no data on pH variation.

Chronic toxicity to fish
NOEC (no observed effect concentration): It is not required to conduct this study since the substance dissociates in water and the only possible effect would result from the pH effect. However, pH will remain within environmentally expected ranges.

Acute toxicity to crustaceans
EC50 (effect concentration, 50%): Species: Ceriodaphnia. 40.4 mg/l (48 h; based on immobility). (Warne et al.,1999)

Chronic toxicity to crustaceans
NOEC (no observed effect concentration): it is not required to conduct this study since the substance dissociates in water and the only possible effect would result from the pH effect. However, pH will remain within environmentally expected ranges.

Toxicity data on soil micro- and macro-organisms and other environmentally relevant organisms, such as birds, bees and plants:
If emitted to soil, sorption to soil particles will be negligible. Depending on the buffer capacity of the soil, OH- will be neutralised in the soil pore water or the pH may increase. There is no direct exposure of soil to NaOH based on the available uses. In addition, no indirect exposure via air is expected as it rapidly neutralizes in air.

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12. ECOLOGICAL INFORMATION (Continued)

Persistence / Degradability	Readily biodegradable Other relevant information Abiotic degradation: NaOH is a strong alkaline substance that dissociates completely in water to Na+ and OH-. High water solubility and low vapour pressure indicate that NaOH will be found predominantly in aquatic environment. This implies that it will not adsorb on particulate matter or surfaces. Atmospheric emissions as aerosols are rapidly neutralized by carbon dioxide and the salts will be washed out by rain.
Mobility	High water solubility and mobility.
Environmental Fate	Caustic soda may react violently with acids and water. Do not allow drainage into sewers, streams or storm conduits.
Bioaccumulation Potential	Bioconcentration factor (BCF): experimental data: Considering its high water solubility, NaOH is not expected to bioconcentrate in organisms. In addition, sodium is a naturally-occurring element that is prevalent in the environment and to which organisms are exposed regularly, for which they have some capacity to regulate the concentration in the organism. Partition coefficient: n-octanol/water (log Pow): Not applicable (inorganic substance).
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of in accordance with all local, state and federal regulations. All empty packaging should be disposed of in accordance with Local, State, and Federal Regulations or recycled/reconditioned at an approved facility.
Special Precautions for Land Fill	Contact a specialist disposal company or the local waste regulator for advice. The product can be neutralised using highly diluted hydrochloric acid, which should be added very slowly by specialised personnel wearing proper protection. NEVER NEUTRALISE THE SOLID PRODUCT.

14. TRANSPORT INFORMATION

UN No.	1823
Proper Shipping Name	SODIUM HYDROXIDE, SOLID
Hazchem Code	2W
Class	8
Packing Group	II
EPG (Land, ADG)	37 Toxic And/Or Corrosive Substances Non-Combustible
EPG (Sea, IMDG)	FA, SB

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15. REGULATORY INFORMATION

Classification	Poisons Schedule: S6 according to the Poisons Standard March 2016 Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS) Dangerous Goods according to the criteria of the Australian Dangerous Goods Code (ADG Code).

16. OTHER INFORMATION

Contact Point	Dominant Australia. Phone 08 8245 6900 24 hour medical emergency 13 11 26
Date of preparation	1st August 2012