BIOCEL			ISO 9001 REGISTERED COMPANY		
Manual	Material Safety Data Sheet	Written by:	K.C. McCarthy		
Title:	Unisan Plus Powder	Revision:	1		
Section No.:	MSDSP C006	Date:	232/01/2017		
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SAFETY DATA SHEET According to Regulation (EC) No. 453/2010

1. Identification of the substance/preparation and of the company/undertaking

1.1. Product Identifiers				
Trade name:	Unisan Plus Powder			
Registration number	N/A			
CAS number	N/A			
EC index number	N/A			
EINECS number	N/A			

1.2. Product Identifiers

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

-Material for industrial applications

-Industrial and professional use

1.3. Supplier's details

-Company: Biocel Ltd. -Address: Rockgrove Industrial estate, Little Island, Co. Cork, Ireland -Telephone: +353(021)4353516 -Fax: +353(021)4354358 -Contact Email info@biocel.ie

1.4. Emergency telephone number

-Emergency telephone number (outside of office hours): +353(021)4353516

2. Hazards identification

2.1. Classification of the substance or mixture Classification (1272/2008/CE): Skin Corrosion, Category 1A (H314) Corrosive to metals, Category1 (H290)

Classification (2006/121/EC, 1999/45/EC): Causes severe burns.

2.2 Label elements Hazardous components which must be listed on the label: Sodium hydroxide Labelling (1272/2008/CE):



Hazard statements:

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H314 Causes severe skin burns and eye damage. H290 May be corrosive to metals.

Precautionary statements:

P102	Keep out of reach of children.
P260	Do not breathe dust or mist.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+ P330+ p331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): 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.
P308	IF exposed or concerned:
P310	Immediately call a POISON CENTER or a doctor/physician.
P405	Store locked up

Labelling (2006/121/EC, 1999/45/EC):

Labelling and classification in accordance with the EC Dangerous Preparations Directive (1999/45/EC) and subsequent amendments

C	Corrosiv	/e
Contains:	Sodium	Hydroxide
R-phrase(s):	R35	Causes severe burns.
S-phrase(s):	S26 S37/39 S45	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

3. Composition/information on ingredients

3.1 Type of product: Mixture powder

Hazardous components

Sodium hydroxide (caustic soda)					
Concentration (%):	70-80				
CAS-No.:	1310-73-2				
EINECS-No.:	215-185-5				
Index-No.:	011-002-00-6				
Classification (1272/2008/CE):	Met.Corr.1 H290	Skin Corr.1A H314			
Specific threshold concentration (GHS):					

Skin Corr. 1A	H314	≥ 5%
Skin Corr. 1B	H314	2 ≤ 5%
Skin Irrit. 2	H315	0.5 ≤ 2%
Eye Irrit. 2	H319	0.5 ≤ 2%

Classification (37/548/EEC):

C R35

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Specific threshold concentration

Xi	R36/38	0.5 ≤ 2%
С	R34	2 ≤ 5%
С	R35	≥ 5%

4. First-aid measures

4.1 Description of first aid measures

General advice: Remove victims from the danger zone without endangering your own safety. Remove contaminated clothing (including underwear and shoes) immediately.

If inhaled: Bring accident victims out into the fresh air. If patient has difficulty in breathing, administer oxygen, keep the patient calm and warm. Call a physician immediately.

In case of skin contact: After contact with skin, wash immediately with plenty of water. Apply sterile protective bandage; consult GP.

In case of eye contact: Hold the eyes open and rinse with preferably lukewarm water for a sufficiently long period of time (at least 10 minutes). Contact an ophthalmologist.

If swallowed: If swallowed, rinse mouth with water (only if the person is conscious). DO NOT induce the patient to vomit, medical advice is required.

4.2 Most important symptoms and effects, both acute and delayed Notes to physician: See Section 11 for information on toxicology.

4.3 Indication of any immediate medical attention and special treatment needed Therapeutic measures: Basic first aid, decontamination, symptomatic treatment. Treat with a corticoid metered aerosol depending on the amount inhaled.

5. Fire-fighting measures

5.1 Suitable extinguishing media: Carbon dioxide (CO2), foam, extinguishing powder, in cases of larger fires, water spray should be used.

Unsuitable extinguishing media: High volume water jet.

5.2 Special hazards arising from the substance or mixture:

Burning releases carbon monoxide, carbon dioxide, oxides of nitrogen and traces of hydrogen cyanide. In the event of fire and/or explosion do not breathe fumes.

5.3 Advice for fire-fighters:

During fire-fighting respirator with independent air-supply and airtight garment is required. Fight fire in early stages if safe to do so. Containers at risk of fire should be cooled with water and, if possible removed from the danger area. Do not allow contaminated extinguishing water to enter the soil, ground-water or surface waters.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

Put on protective equipment (see Section 8). Ensure adequate ventilation/exhaust extraction. Keep Biocel Ltd., Rockgrove Industrial Estate, Little Island, Co. Cork, T45 CY51, Rep. of Ireland, P: +353 (0)21 4353516; E: <u>info@biocel.ie;</u> URL: www.biocel.ie

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unauthorized persons away.

6.2.1 Environmental precautions: Do not flush into surface water or sanitary sewers system.

6.3 Methods and material for containment and cleaning up:

Take up with absorbent for chemicals or, if necessary with dry sand. Fill into labelled, sealable containers. Also place used cleaning materials into closable receptacles.

6.4 Reference to other sections: For further disposal measures see Section 13.

7. Handling and storage

7.1 Precautions for safe handling:

Handle and open container with care. Provide sufficient air exchange and/or exhaust in work rooms. Organize work procedures so that workers are not exposed to the effects of the products. Vent waste air only via suitable separator or scrubbers.

Precautions should generally be taken against electrostatic charges according to the equipment used and the way the product is handled and packaged.

The precautions required in the handling of irritant or corrosive substances must be taken.

Contact with skin and eyes and inhalation of vapors must be avoided under all circumstances. Careful attention to industrial and personal hygiene is essential.

Keep away from foodstuffs, drinks and tobacco. Wash hands before breaks and at the end of work day. Keep working clothes separately. Change contaminated or soaked clothing immediately. If the suit becomes contaminated, first take a shower with the suit on.

Keep away from incompatible products and naked flames/heat.

Do not discharge the waste into drains.

The general conditions of use are further specified in the exposure scenarios which may be found in the attached annex.

7.2 Conditions for safe storage, including any incompatibilities:

Store in a dry, well-ventilated area. Keep in properly labeled closed containers. Keep away from incompatible products and naked flames/heat.

Protect against frost.

Keep away from: -combustible materials, -(strong) acids, -metals

Suitable packaging material:

- -stainless steel -nickel
- -polyethylene -polypropylene

-glass -stoneware/porcelain

Non suitable packaging material:

-lead -aluminium -copper

-zinc -bronze -tin

7.3 Specific end use(s):

For further information contact the supplier.

8. Exposure Controls/Personal Protection

8.1 Control parameters

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Components with workplace control parameters

Substance	CAS-No.	Basis	Туре	Value	Ceiling Limit Value
Sodium Hydroxide					
(Caustic Soda)	1310-73-2	EH40 WEI	STEL	2mg/m ³	

For technical protective measures to limit exposure see also Section 7 "Handling and storage". The general RMMs are further specified in the exposure scenarios which may be found in the attached annex.

Derived No Effect Level (DNEL) or Derived Minimal Effect Level (DMEL):

Sodium hydroxide (caustic soda)

Worker (short-term)	
DNEL Dermal - local effects:	< 2 %
DNEL Inhalation - local effects:	No data available

<u>Worker (long-term)</u>

DNEL Dermal - local effects:	No data available
DNEL Inhalation - local effects:	1 mg/m³ air
Most sensitive endpoint: Irritation	(respiratory tract)

Predicted No Effect Concentration (PNEC):

Sodium hydroxide (caustic soda)

Freshwater:	Not applicable
Marine water:	Not applicable
Sediment:	Not relevant
Soil:	Not relevant
STP (sewage-treatment plant):	Not applicable
Oral:	Not relevant

8.2 Exposure controls

Respiratory protection:

Recommendations regarding respiratory protection can be found in the individual exposure scenarios in the appendix.

Hand protection:

Suitable materials for safety gloves; EN 374:				
Nitrile rubber- NBR:	thickness ≥0,35mm;	breakthrough time ≥ 480min.		
Polyvinyl chloride- PVC:	thickness ≥ 0,5mm;	breakthrough time ≥ 480min.		
Polychloroprene- CR:	thickness ≥ 0,5mm;	breakthrough time ≥ 480min.		
Butyl rubber llR:	thickness ≥ 0,5mm;	breakthrough time ≥ 480min.		
Fluorinated rubber-	FKM: thickness>=0,4mm;	breakthrough time ≥ 480min.		
Recommendation: contaminated gloves should be disposed of.				

Eye protection:

Wear eye/face protection.

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Skin and body protection:

Impervious protective clothing. On possible contact with the product (sampling, product leakage): full protection or chemical protection clothing.

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Sir mormation on busic physica	rana enernical propertie
Appearance:	Powder
Colour:	White
Odour:	Odourless
Odour Threshold:	Not established
pH:	>14 at 100g/l at 20°C
Melting point/range:	318°C
Boiling point/range:	1380°C
Flash point:	Not applicable
Evaporation rate:	Not established
Flammability(solid, gas):	Not applicable
Burning number:	Not applicable
Vapour pressure:	Not established
Vapour density:	Not established
Density:	1.1 - 1.2 g/cm ³
Surface tension:	Not established
Partition coefficient	Not established
(n-octanol/water):	
Autoignition temperature:	Not applicable
Ignition temperature:	Not applicable
Decomposition temperature:	Not established
Viscosity, dynamic:	79 mPa.s at 20°C
Explosive properties:	Not established
Dust explosion class:	Not applicable
Oxidising properties:	Not established
9 2 Other information	

9.2 Other information Miscibility with water:

Miscible

10. Stability and Reactivity

10.1 Reactivity:

Exothermic reaction with water. Violent exothermic reaction with strong acids. Reacts with some metals to release hydrogen.

10.2 Stability:

Stable under recommended storage conditions. Hygroscopic. Absorbs atmospheric CO₂.

10.3. Possibility of hazardous reactions

Reacts with (some) metals e.g. Aluminium, Magnesium, Zinc: release of highly flammable gases/vapours (hydrogen).

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On heating: release of corrosive gases/vapours. Reacts violently with Acids.

10.4 Conditions to avoid: -Over heating -Freezing -Direct sunlight -Moisture

10.5 Materials to avoid: -Combustible materials -Strong acids -Metals -Oxidising agents

10.6 Hazardous Decomposition Products:

Reacts with (some) metals: release of highly flammable gases/vapours (hydrogen). On heating: release of corrosive gases/vapours. No hazardous decomposition if stored and handled correctly.

11. Toxicological Information

Toxicological studies on the product are not yet available. Please find below the data available to us:

 11.1 Information on toxicological effects Acute toxicity, oral: Sodium Hydroxide (Caustic Soda) Acute toxicity, dermal: Sodium Hydroxide (Caustic Soda) Acute toxicity, inhalation: Sodium Hydroxide (Caustic Soda) 	No valid data available. No valid data available. No valid data available.
Primary skin irritation: Sodium Hydroxide (Caustic Soda) Classification: Causes severe burns. Method: In Vitro Membrane Barrier Test Method for Skin Corrosion -	In vitro test system Result: Corrosive - CORROSITEX
Primary mucosae irritation: sodium hydroxide (caustic soda) Classification: Causes severe burns. Result: Risk of serious damage to eyes.	Rabbit
Sensitisation: Sodium Hydroxide (Caustic Soda)	No known sensitising effect
Subacute, subchronic and prolonged toxicity: Sodium Hydroxide (Caustic Soda)	No valid data available.
Carcinogenicity: sodium hydroxide (caustic soda)	No data available.
Reproductive toxicity/Fertility: Sodium Hydroxide (Caustic Soda) Reproductive toxicity/Teratogenicity: Sodium Hydroxide (Caustic Soda)	No data available. No data available.
Genotoxicity in vitro: Sodium Hydroxide (Caustic Soda) Test type: Salmonella/microsome test (Ames test) Test type: Chromosome aberration test in vitro	Result: No indication of mutagenic effects. Result: negative

Genotoxicity in vivo: Sodium Hydroxide (Caustic Soda) No valid data available.

 STOT evaluation – one-time exposure:
 Sodium Hydroxide (Caustic Soda)

 Based on available data, the classification criteria are not met.
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Sodium Hydroxide (Caustic Soda) **STOT evaluation** – repeated exposure: Based on available data, the classification criteria are not met. Aspiration toxicity: Sodium Hydroxide (Caustic Soda) Based on available data, the classification criteria are not met. CMR Assessment: Sodium Hydroxide (Caustic Soda) Carcinogenicity: Based on available data, the classification criteria are not met. Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects. Based on available data, the classification criteria are not met. Teratogenicity: Reproductive toxicity/Fertility: Based on available data, the classification criteria are not met. **Toxicology Assessment:** SODIUM HYDROXIDE (CAUSTIC SODA) Acute effects: The product causes burns of eyes, skin and mucous membranes.

Additional information: sodium hydroxide (caustic soda) May cause caustic burns to the mouth, throat or stomach if swallowed. After swallowing danger of stomach perforation. On inhalation: Irritation of mucous membrane, coughing and shortness of breath.

12. Ecological Information

Do not allow to escape into waterways, wastewater or soil. Ecotoxicological studies of the product are not available. Please find below the data available to us:

12.1 Toxicity Acute Fish toxicity:

Sodium Hydroxide (Caustic Soda) LC₅₀ 35 - 189 mg/l Species: Fish Effect concentrations in the aquatic environment are attributable to a change in pH value.

Acute toxicity for daphnia:

Sodium hydroxide (caustic soda) EC₅₀ 40.4 mg/l Species: Ceriodaphnia sp. Exposure duration: 48 h Effect concentrations in the aquatic environment are attributable to a change in pH value.

Acute toxicity for algae:

Sodium hydroxide (caustic soda) No data available. Effect concentrations in the aquatic environment are attributable to a change in pH value.

Acute bacterial toxicity:

Sodium Hydroxide (Caustic Soda) No valid data available. Effect concentrations in the aquatic environment are attributable to a change in pH value.

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Ecotoxicology Assessment:

Sodium Hydroxide (Caustic Soda) Neutralisation will reduce ecotoxic effects. A chronic aquatic toxicity is not expected. Not expected to adsorb on soil. Neutralization is normally necessary before waste water is discharged into water treatment plants.

12.2 Persistence and degradability	
Biodegradability:	
sodium hydroxide (caustic soda)	The methods for determining the biological degradability are not applicable to inorganic substances.
Stability in water:	
sodium hydroxide (caustic soda)	Not applicable
Photodegradation:	
sodium hydroxide (caustic soda)	No data available
Volatility (Henry's Law constant):	
Sodium hydroxide (caustic soda)	The substance has to be scored as non-volatile from water.
12.3 Bioaccumulative potential	
Bioaccumulation:	
sodium hydroxide (caustic soda)	An accumulation in aquatic organisms is not to be expected.
12.4 Mobility: Distribution among environmental compa sodium hydroxide (caustic soda) Adsorption/Soil Mobile in soils	artments:
Environmental distribution:	
sodium hydroxide (caustic soda)	The target compartment is water.
12.5 Results of PBT and vPvB assessment sodium hydroxide (caustic soda)	
This substance does not meet the criteria f	or classification as PBT or vPvB.
12.6 Other adverse effects: sodium hydroxide (caustic soda)	
Toxic effect on fish, plankton and on seden	ntary organisms, also through shifting of pH value.

Causes no biological oxygen consumption. No inhibition of activity of waste bacteria after neutralization.

13. Disposal Considerations

Dispose in accordance with applicable international, national and local laws, ordinances and statutes.

For disposal within the EC, the appropriate code according to the European Waste Biocel Ltd., Rockgrove Industrial Estate, Little Island, Co. Cork, T45 CY51, Rep. of Ireland, P: +353 (0)21 4353516; E: <u>info@biocel.ie</u>; URL: www.biocel.ie

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Catalogue (EWC) should be used.

13.1 Waste treatment methods

After containers have been emptied as thoroughly as possible (e.g. by pouring, scraping or draining until "drip-dry"), they can be sent to an appropriate collection point set up within the framework of the existing take-back scheme of the chemical industry. Containers must be recycled in compliance with national legislation and environmental regulations.

No disposal into surface or waste water.

14.Transport Information

ADR/RID

UN Number:	1823
Description of the goods:	Sodium Hydroxide Solid
Packaging group:	II
Hazard identification No:	80
Hazard label:	8
Environmentally Hazardous:	No
Limited quantity regulations applications	able in accordance with chapter 3.4 ADR/RID in compliance
with threshold value.	

15. Regulatory Information

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

Any existing national regulations on the handling of irritant or corrosive substances must be observed.

National provisions:

Relevant Statutory Instruments

- Carriage of Dangerous Goods by Road Regulations 2007, S.I. 288 of 2007
- Carriage of Dangerous Goods by Road (ADR miscellaneous provisions) Regulations 2007, S.I.289 of 2007
- Carriage of Dangerous Goods by Road Act 1998 (Appointment of Competent Authorities) Order 2007, S.I.290 of 2007
- Carriage of Dangerous Goods by Road Act 1998 (Fees) Regulations 2007, S.I. 291 of 2007
- Chemicals Act 2008, No. 13 of 2008
- ADR 2011
- Safety, Health and Welfare at Work (Chemical Agents) Regulation 2001, SI 619 of 2001

EU Legislation:

Classification (1272/2008/CE):

Classification and labelling according to Regulation (EC) No 1272/2008 – Annex VI and after evaluation of available test data

Skin Corrosion, Category 1A (H314) Corrosive to metals, Category1 (H290)

Labelling (1272/2008/CE):

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Hazard statements:

H314 Causes severe skin burns and eye damage.

H290 May be corrosive to metals.

Precautionary statements:

i i ceda dional y statellite	
P260	Do not breathe dust or mist.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+ P330+ p331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303+ P361 + P353	IF ON SKIN (or hair): 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.
P308	IF exposed or concerned:
P310	Immediately call a POISON CENTER or a doctor/physician.

Classification Classification and labelling according with Directives 67/548/EEC and 1999/45/EC



Labelling (2006/121/EC, 1999/45/EC):

Labelling and classification in accordance with the EC Dangerous Preparations Directive (1999/45/EC) and subsequent amendments

C Corrosive

Contains: sodium hydroxide

R-phrases S-phrases

- (01/02) (Keep locked up and out of the reach of children)
 In case of contact with eyes, rinse immediately with plenty of water and seek
 - medical advice.
 - 37/39 Wear suitable gloves and eye/face protection.
- 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for: sodium hydroxide (caustic soda)

16. Other information

PBT-substances: Persistent, bioaccumulative and toxic substances

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DSD: Dangerous Substance Directive DPD: Dangerous Preparation Directive CLP (EU-GHS): Classification, labelling and packaging (Globally Harmonised System in Europe) Met. Corr.: Substance or mixture corrosive to metals Skin Corr.: Skin corrosion

Note:

The information contained in this data sheet is copied from the safety data sheet provided by the manufacturer. The information is given in good faith and to the best of our knowledge but no guarantee, implied or otherwise, is made.

Revision History

Changes

Responsible

Date