SAFETY DATA SHEET

For

SODIUM HYDROXIDE SOLUTION, 30 - 50%
UN1824

GOULDING

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION

Chemical Product Name Sodium Hydroxide Solution 30-50%

Company Details

Goulding Chemicals Limited,
Centre Park Road,
Marina,
Cork

Tel: (021) 4911611
Fax: (021) 4911660

2. COMPOSITION/INFORMATION ON INGREDIENTS

Common Chemical Name Sodium Hydroxide Solution 30-50%

Synonyms Caustic Soda Liquor, Sodium Lye Solution.

Chemical Formula NaOH

Chemical Family Alkali.

CAS Name & Number Sodium Hydroxide / 1310-73-2.

Ingredients contributing to the hazard. Sodium Hydroxide.

3. HAZARD IDENTIFICATION

Main Hazard - Corrosive.

Causes severe burns. Keep out of reach of children. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Take off all contaminated clothing immediately. Wear suitable gloves and eye, face protection. In case of accident or if you feel unwell, seek medical advice immediately (show label where possible).

4. FIRST AID MEASURES

Eye Contact Immediately flood with copious quantities of water for at least 30 minutes holding the eye open if necessary.
Obtain medical attention.

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4. FIRST AID MEASURES cont...

Skin Contact

Immediately wash with water, preferably under a shower, removing contaminated clothing while washing proceeds.

Obtain medical attention if irritation persists or if blistering occurs.

Contaminated clothing should be washed before re-use.

Inhalation

Remove from exposure. Keep warm and at rest. If there is respiratory distress, give oxygen. If respiration stops or shows signs of failing, apply artificial respiration.

Obtain medical attention urgently.

Ingestion

Wash out mouth with water, give plenty of water or other fluids to drink.

Do not induce vomiting.

Obtain medical attention urgently.

Treatment may be needed for pain and shock.

Note for Doctors

Harmful by ingestion, inhalation, skin and eye contact.

Local corrosive effects predominate.

No known systemic effects.

No specific antidotal treatment, symptomatic support required.

No known delayed effects after single exposure apart from consequence of local tissue damage.

5. FIRE FIGHTING MEASURES

Extinguishing Media

Not applicable.

Sodium hydroxide solution is non flammable.

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6. ACCIDENTAL RELEASE MEASURES

Personnel Precautions

Wear full protective equipment. -
See Exposure Controls / Personal Protection (Section 8).

Environmental Precautions

If spillage or contaminated washings cause contamination of water courses, drains or vegetation inform relevant authorities.

Methods for Cleaning up

Small spillages - dilute carefully with water.
Large spillages - absorb in earth or sand. Place into containers and dispose of using licensed waste disposal contractors.

Wash down contaminated area with water. Collect and treat all water used in the clean up, see Environmental Precautions.

7. HANDLING AND STORAGE

Handling

Wear full protective clothing.

Provide safety showers and eyebaths in areas where accidental exposure is possible.

Certain sugars react with sodium hydroxide in solutions above 1% strength and above 85°C to form carbon monoxide gas. This can be a respiratory and/or a fire hazard, particularly when cleaning certain dairy equipment. The susceptible compounds include fructose, galactose, arabinose, levulose, lactose, maltose and dry whey powder.

Storage

Sodium hydroxide solution should be stored in a closed vessel to avoid moisture absorption and contamination.

Store sodium hydroxide away from reactive materials.

There is a danger of freezing in cold weather and if the product temperature falls below the given recommendation it may be necessary to heat the product.

Product temperature must not exceed 50°C unless mild steel in contact with it has been stress relieved.

Recommended MINIMUM Storage Temperatures

30% and 47%: 20°C

50%: 25°C

Materials

UNSUITABLE	SUITABLE
Aluminium	Mild steel (see storage)
Tin	Stainless steel
Zinc and alloys	Cast iron or steel
Lead and alloys	Nickel
Brass	Rubber
Copper alloys	Epoxy coatings
	Certain PVC (subject to temp. limitations)
	Polypropylene

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Personal Protective Equipment	PVC suit. PVC gloves. PVC or rubber footwear. Chemical goggles. Breathing apparatus where fumes are a problem.
Occupational Exposure Limits	TWA: STEL: 2 mg/m^2 EH40 - 1993
Installation Control	See Handling and Storage (Section 7).

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colourless or grey syrupy liquid.
Density Liquid kg/m^3	@ 20^0C 30%: 1.328 47%: 1.480 50%: 1.525
Odour	Slight, characteristic.
Molecular Weight	40.01g as NaOH 100%
pH	>14 at 100 g/l water at 20^o C.
Solubility	Completely soluble in water.
Boiling Point ^{0}C	30%: 118^0C 47%: 140^0C 50%: 145^0C
Melting Point ^{0}C	30%: $+1^0$C 47%: $+8^0$C 50%: $+12^0$C
Vapour Pressure at ^{0}C	at 15^0C 30%: 6.6 47%: 2.0 50%: 1.45
Flash Point	Not applicable.
Flammability	Not applicable.
Auto Flammability	Not applicable.

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10. STABILITY AND REACTIVITY

Stability	Sodium hydroxide if stored correctly will not decompose over time.
Conditions to Avoid	Avoid low temperature storage - see Handling and Storage (Section 7).
Material to Avoid:	
- Water	Mixture will become warm during initial dilution (exothermic reaction).
- Air	No dangerous reaction. Slow absorption of carbon dioxide to form sodium carbonate.
- Acids	Violent reactions.
- Bases/Alkalis	No dangerous reaction.
- Oxidising Agents	A violent reaction with chlorine, otherwise no dangerous reaction, with oxidising agents in aqueous solution.
- Hazardous Decomposition Products	Hydrogen gas may be liberated by contact with certain metals such as brass, zinc, aluminium, forming an explosive hazard.

11. TOXICOLOGICAL INFORMATION

Effects of Substance:

- On Eyes	Liquid: severe burns, even on short duration contact. Mist or spray: moderate to severe irritation, may cause injury at concentrations.
- On Skin	Liquid: severe irritations and burns. Mist or spray: irritation.
- By Skin Absorption	No known systemic effects by any route of exposure.
- By Ingestion	Severe irritation and corrosion of the mouth, throat and digestive tract.
- When Inhaled (acute effect)	Exposure to the mist or spray in concentration much above the hygiene standard causes irritation to the nose, throat and respiratory tract.
- When Inhaled (chronic effect)	Not known.

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12. ECOLOGICAL INFORMATION

Toxic to fish and algae. Concentrations greater than 4mg/l as 100% may be lethal to fish. Increasing pH to 10 or more is lethal to aquatic life.

13. DISPOSAL CONSIDERATIONS

Spillages	Wear full protective clothing. See Exposure Controls/Personal Protection (Section 8). See Accidental Release Measures (Section 6).
Waste	Dispose of sodium hydroxide solutions or materials contaminated with sodium hydroxide using a waste disposal firm.

14. TRANSPORT INFORMATION

UN Number	1824 Class 8 corrosive substance.
ADR/RID Classification	8 ADR. HIN.80
IMO Code/Classification	8, corrosive.
Classification Code	C5
Packaging Group	II
Normal Carriage Pressure	Atmospheric
Normal Carriage Temperature	10^0C - 48^0C (See Handling and Storage)

15. REGULATORY INFORMATION

Most Important Hazard	C	- Corrosive.
Risk Phrases	R35	- Causes severe burns.
Safety Phrases	S2	- Keep out of reach of children.
	S26	- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	S27	- Take off all contaminated clothing immediately.
	S37/39	- Wear suitable gloves and eye, face protection.
	S45	- In case of accident or if you feel unwell, seek medical advice immediately (show label where possible).

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15. REGULATORY INFORMATION cont....

Relevant Statutory Instruments

1998/43	Carriage of Dangerous Goods by Road Act, 1998
S.I. 2001/492	Carriage of Dangerous Goods by Road Regulations 2001
S.I. 2001/619	Safety, Health and Welfare at Work (Chemical Agents) Regulation, 2001.

16. OTHER INFORMATION

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

Issued md Oct '01

Revision History

Changes	Responsible	Date
pH, adr, stat inst., class code + Pack grp	sod	sept 03

Albion Chemical Distribution (Ireland) Ltd

Unit 2, Crossbeg Industrial Estate, Ballymount, Dublin 24
Telephone: 00 353 1 460 0360
Fax: 00 353 1 460 0339
email: dublin.sales@albionchemicals.co.uk
Website: www.albionchemicals.co.uk

To
cc
From
Date
Pages 1 of (Including this page)
Subject

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply**

PRODUCT SPECIFICATION NO. NA60001

NITRIC ACID 60%

Appearance :	Colourless to pale yellow solution
Specific Gravity @ 20 ° C :	Nominally 1.37
Nitric Acid, % w / w :	60 +/- 1
Iron as Fe :	0.001 % maximum
Chloride as C1 :	0.001 % maximum
Nitrous Acid as HNO_2 :	0.05 % maximum
Sulphuric Acid as SO_3 :	0.02 % maximum
Residue on Ignition :	0.01 % maximum

Conforms to 93/112/EC and ISO 11014-1 - United Kingdom (UK)

SAFETY DATA SHEET

albion CHEMICALS GROUP

NITRIC ACID 50% - 70%

mnia507

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

Product name	: **NITRIC ACID 50% - 70%**	Supplier	: Albion Chemical Distribution Rawdon House Green Lane Yeadon Leeds LS19 7XX
Chemical product name	: NITRIC ACID 50% - 70%		
Synonyms	: NITRIC ACID 50% - 70%		
EMERGENCY ONLY TELEPHONE NUMBER	: (N.C.E.C. CULHAM) 01865 407333	Telephone No.	: (0113) 2505811
		Fax No.	: (0113) 2508776
Formula	: HNO3	Molecular Mass	: 63.02

2. Composition/information on ingredients

Substance/Preparation : Substance

Chemical name*	CAS No.	%	EC Number	Symbol	R-Phrases
1) NITRIC ACID 50% - 70%	7697-37-2	50-70	231-714-2	C	R35

*** Occupational Exposure Limit(s), if available, are listed in Section 8**

Composition	AQUEOUS SOLUTION OF NITRIC ACID AT SPECIFIED MASS CONCENTRATION. SPECIFICATION WILL BE GIVEN ON REQUEST
CAS No.	7697-37-2
EINECS Number	231-714-2

3. Hazards identification

Human health hazards : Causes severe burns.

4. First-aid measures

First-Aid measures

Inhalation	: Remove from exposure. If breathing stops or shows signs of failing, give artificial respiration. Obtain medical attention urgently. Keep warm and at rest. If there is difficulty in breathing, give oxygen. Do not use mouth to mouth ventilation.
Ingestion	: Wash out mouth with water. Have victim drink 1-3 glasses of water to dilute stomach contents. Obtain medical attention. Do not induce vomiting.
Skin contact	: Immediately flood the skin with large quantities of water, preferably under a shower. Remove contaminated clothing as washing proceeds. Contaminated clothing should be washed or dry-cleaned before re-use. Obtain medical attention if blistering occurs or redness persists.
Eye Contact	: Immediately flood the eye with plenty of water for at least 10 minutes, holding the eye open. Obtain medical attention urgently.

Effects and symptoms

Inhalation	: Exposure to decomposition products may have the following effects:- wheezing. tightness of the chest. pulmonary oedema. Serious effects may be delayed following exposure.
Ingestion	: Swallowing may have the following effects:- haematemisis. perforation of the oesophagus. gastric perforation. cyanosis. circulatory failure. coma and death.
Skin contact	: Product will cause severe chemical burns. Repeated or prolonged contact may produce defatting of the skin leading to irritation and dermatitis.
Eye Contact	: Liquid will cause severe conjunctival irritation and corneal damage.
Aggravating conditions	: Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation, leading to frequent attacks of bronchial infection.
Notes to physician	: Keep under medical surveillance for 48 hours if exposure to fumes is suspected.

5. Fire-fighting measures

Extinguishing Media

Suitable	:	Select extinguishing agent appropriate to other materials involved. Keep containers and surroundings cool with water spray.
Unusual fire/explosion Hazards	:	Hazardous Combustion Products : NITROGEN OXIDES , HYDROGEN NITRATE This product may give rise to hazardous fumes in a fire.
Hazardous thermal decomposition products	:	Decomposes in heated air producing:- toxic and acidic fumes. oxides of nitrogen. toxic nitrogen compounds.
Special fire-fighting procedures	:	Fire fighters should wear self-contained positive pressure breathing apparatus (SCBA) and full turnout gear.
Protection of fire-fighters	:	Wear full protective clothing and self-contained breathing apparatus.

6. Accidental release measures

Personal Precautions	:	Ventilate the area to dispel airbourne concentrations. Wear appropriate protective clothing.
Environmental precautions and cleanup methods	:	Neutralise by careful addition of hydrated lime or soda ash. Drench spillage with water and wash to drain, diluting greatly with water. Advise Authorities if spillage has entered water course or sewer or has contaminated soil or vegetation.

7. Handling and storage

Handling	:	*Use in well ventilated area. Avoid contact with eyes, skin and clothing. Avoid inhaling vapour.*
Storage	:	Stock tanks should be bunded separately, away from organic substances such as wood, paper and straw and other reactive chemicals. Suitable storage materials are:- stainless steel. PTFE. Do not store in:- brass. bronze. polyethylene. plasticised PVC. aluminium and its alloys .

Packaging materials

Recommended use	:	Use original container.

8. Exposure controls/personal protection

Engineering measures	:	*Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapours below their* respective threshold limit value. Ensure that eyewash stations and safety showers are close to the workstation location.
Hygiene measures	:	Wash hands after handling compounds and before eating, smoking, using lavatory, and at the end of day.
Occupational Exposure Limits	:	Not available.

Personal protective equipment

Respiratory system	:	Respiratory protection if there is a risk of uncontrolled exposure to vapour.
Skin and body	:	Wear: rubber apron. rubber boots.
Hands	:	PVC or rubber gloves.
Eyes	:	Chemical goggles.

9. Physical and chemical properties

Physical state	:	Liquid.
Colour	:	Colourless. to Pale. Yellow.
Odour	:	Characteristic. Choking.
Boiling point	:	117 - 122
Melting point	:	- 20to - 39
Density	:	Not available.
Vapour density	:	2
Vapour pressure	:	9mbar20°C (70%)
Solubility	:	Completely soluble.
pH	:	pH < 1
Flash point	:	Not available.
Viscosity	:	2.1 cP AT 20°C

10. Stability and reactivity

Stability : The product is stable.

Conditions to Avoid : Exposure to light. High temperatures.

Materials to avoid : Alkalis. Oxidising agents. Strong acids. Hydrocarbon solvents. Water. Alcohols. Glycols. Aldehydes. Ketones. Materials that are attacked by nitric acid.

Hazardous decomposition products : Decomposes in heated air producing:- toxic and acidic fumes. oxides of nitrogen. toxic nitrogen compounds.

11. Toxicological information

Local effects

Skin irritation : Extremely hazardous in case of skin contact (corrosive).

Eye irritation : Extremely hazardous in case of eye contact (irritant).

Acute toxicity : LD50: Not available.
LC50: Not available.

Chronic toxicity : Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation, leading to frequent attacks of bronchial infection.

12. Ecological information

Ecotoxicity : High concentrations injure aquatic life by effect on pH. The product is rated as moderately toxic to aquatic species.

13. Disposal considerations

Methods of disposal ; Waste of residues ; Contaminated packaging : Dispose of in accordance with all applicable local and national regulations.

Waste Classification : Not applicable.

14. Transport information

International transport regulations

UN :	UN number	2031
UN :	Proper shipping name	Nitric acid, <70%
UN :	Class	8
UN :	Packing group	II
ADR/RID :	Class	8
ADR/RID :	Item Number	2(b)
ADR/RID :	Hazard identification number	80
TREMCARD TEC(R)		TEC(R)-9B
IMDG :	Packing group	II
IMDG :	Class	8
IATA :	Packing group	II
IATA :	Class	8

15. Regulatory information

EU Regulations

Hazard symbol(s) :

Classification : Corrosive

Risk Phrases : R35 Causes severe burns.

Safety Phrases : S23 Do not breathe gas/fumes/vapour/spray.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36 Wear suitable protective clothing.
S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Contains : - NITRIC ACID 50% - 70%

Product Use : Classification and labelling have been performed according to EU directives 67/548/EEC, 88/379/EEC, including amendments and the intended use.
- Consumer applications.

16. Other information

HISTORY *(Please note that dates are in American format (month/day/year))*

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Version : **1.03**

Prepared by : **Michael Hale / Alistair Hunter**

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