



**THE ANDHRA PETROCHEMICALS LIMITED, VISAKHAPATNAM.**  
**MATERIAL SAFETY DATA SHEET (MSDS)**  
**N-BUTANOL**

**SECTION-1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

Product Identifier:

Material Name:	N-BUTANOL
Chemical formula:	CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> OH
CAS. No:	71-36-3
Trade Name & synonyms:	1-Butanol, N-Butyl Alcohol, Butan-1-ol
Product Use:	Solvent in manufacturing of Butyl acetate, melamine, resins, Plasticizers, antibiotics, etc.

Manufacturer's details:

Name:	The Andhra Petrochemicals Limited
Street:	P.B.No.1401, Opp: Naval Dockyard
City:	Visakhapatnam.
State:	Andhra Pradesh
Postal Code:	530 014
Emergency Tel.Nos:	+91-0891-2891500/2891496/414/410/412
Fax No.:	0891-2577751
E-Mail:	info.vskp@theandhrapetrochemicals.com

Supplier's details:

Name:	The Andhra Petrochemicals Limited
Street:	No.202-A, 2 <sup>nd</sup> floor, My Home Sarovar Plaza, Secretariat Road, Saifabad
City:	Hyderabad
State:	Telangana
Postal Code:	500063
Emergency Tel.Nos:	040-23420666/23420667
Fax No.:	040-23420665
E-Mail:	info.hyd@theandhrapetrochemicals.com

Date MSDS prepared: 14. Sept. 2015

MSDS prepared by: Technical Services, APL

**SECTION-2: COMPOSITION/INFORMATION ON INGREDIENTS**

Composition:

N-BuOH purity:	99.5% (wt min)
Color, APHA:	10 (max)
Water:	0.1% (wt max)
Acidity as acetic acid:	0.01% (wt max)
Aldehyde (as butyraldehydes):	0.05% (wt max)



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Sulphuric Acid colour, APHA:	25 (max)
<b>SECTION-3: HAZARDS IDENTIFICATION</b>	
Hazardous Ingredients:	Nil
U.N.Number:	1212 (3.0.0)(0)II
Haz Chem Code:	3YE
HMIS hazard ratings:	Health: 1, Flammability: 3, Stability/Reactivity: 0
OSHA Specified Hazards:	Not applicable
Interdictions:	Do not drink or eat in working area; Do not smoke in or near working area; The use of open flame in working areas is prohibited.
Hazardous Statements:	Flammable liquid and vapor
	Harmful if swallowed.
	Causes skin irritation.
	Causes serious eye damage.
	May cause drowsiness or dizziness.
Precautionary Statement:	
Prevention:	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
	Wear protective gloves/protective clothing/eye protection/face protection.
	Avoid breathing dust/fume/gas/mist/vapors/spray.
	Use only outdoors or in a well-ventilated area.
	Wash hands thoroughly after handling.
	Do not eat, drink or smoke when using this product.
	Take precautionary measures against static discharge.
	Use only non-sparking tools.
	Use explosion-proof electrical/ventilating/lighting/equipment.
	Ground/bond container and receiving equipment.
	Keep container tightly closed.
Response:	In case of fire: Use water spray, CO2, dry chemical (or) foam for extinction.
	If Inhaled: Remove person to fresh air and keep comfortable for breathing
	If on skin: Wash with plenty of water/...
	If skin irritation occurs: Get medical advice/attention
	Take off contaminated clothing
	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	If eye irritation persists: Get medical advice/attention.
Disposal:	Dispose of contents/container to an appropriate treatment and disposal



	facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.
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**SECTION-4: FIRST AID MEASURES**

First Aid Measure:	Flush the affected portion with plenty of water for atleast 15 minutes. Remove contaminated clothing & provide fresh air.
Doctor's Advise:	Give artificial respiration if required.
Sources Used:	First Aid Centres, Private Hospitals etc.
Additional information:	Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Treat symptomatically.

**SECTION-5: FIRE FIGHTING MEASURES**

Flammability:	Yes
If yes, under what conditions:	At its Flash point 29°C & auto ignition Temp.340°C
Means of Extention:	Use Dry chemical powder, CO2 extinguishers, foam, water spray.
Special Procedures:	Use Alcohol resistant foam AGFFF for bulk liquid fire. Use water fog for cooling.
Flash Point & Method:	29°C & Closed cup, 36°C & Open cup.
Upper Explosion Limit:	11.2% V/V
Lower Explosion Limit:	1.4% V/V
Auto-ignition Temperature:	340°C
Hazardous Combustion Products:	Acrid Smoke and Fumes
General fire hazards:	Combustible liquid and vapor. Vapors may travel considerable distance to a source of ignition and flash back. Prevent buildup of vapors or gases to explosive concentrations. Material will float and may ignite on surface of water.
Advice for fire-fighters:	Use water spray to keep fire-exposed containers cool. Water may be ineffective in fighting the fire.
Special protective equipment for fire-fighters:	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**SECTION-6: ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures:	Wear appropriate personal protective equipment.
Environmental Precautions:	Avoid release to the environment.
Methods and material for containment and cleaning up:	Eliminate sources of ignition. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Large Spillages: Flush spill area with water spray. Prevent runoff from entering drains, sewers, or streams. Dike for later disposal.
Notification Procedures:	In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

**SECTION-7: HANDLING AND STORAGE**

Handling procedures and	Use Metal buckets and collect in drums or pump back to a container.
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equipment:	Ground/bond container and receiving equipment.
Storage Requirements:	Can use MS or C.I. Containers. Store in well-ventilated place. Keep cool. Protect containers against physical damage. Use permit system.
Precaution for safe handling:	Avoid breathing vapor. Avoid contact with eyes, skin, and clothing. Use only with adequate ventilation. Wash thoroughly after handling.

**SECTION-8: EXPOSURE CONTROL / PERSONAL PROTECTION**

Gloves:	PVC Gloves
Respiratory:	Breathing Apparatus
Eyes /face protection:	PVC Goggles, Face Shield
Footwear:	PVC (Shoe)
Clothing:	PVC Suit
Leak and Spill procedures:	Contain the leak, keep away from Heat or Flame and in-compatible materials use sand to soak the leaked material.
General information:	Maintain eye bath, washing facilities, Safety shower in work area.
Engineering controls:	Maintain good ventilation

**SECTION-9: PHYSICAL AND CHEMICAL PROPERTIES**

Physical State:	Liquid
Odour and Appearance:	Sweet odour, Clear liquid
Molecular weight:	74.12
Relative density:	Liquid (Water = 1.0): 0.805 vapor (Air = 1.0): 2.55
Vapour Pressure:	4.2mmHg at 20°C
Evaporation Rate:	0.5
Boiling point:	117.5°C
Freezing Point:	- 88.9°C
Solubility in water:	7.7% W/W at 30°C
pH	Not pertinent
Density:	0.807 gr/ml
Flash point:	29°C
Auto-ignition:	340°C

**SECTION-10: STABILITY AND REACTIVITY**

Chemical Stability:	Stable at Normal condition
Incompatibility to other substances:	Keep away from sulfuric and other strong inorganic acids, aluminum or lead (including equipment made of these metals), and oxidizing agents such as peroxides, nitric acid, perchloric acid or chromium trioxide.
Hazardous Decomposition Products:	When heated to decompose, it emits Acrid smoke.

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Conditions to avoid:	Heat, flames, ignition sources and confined spaces. Slowly decomposed by moisture.
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**SECTION-11: TOXICOLOGICAL INFORMATION**

Route of Entry Skin Contact:	Yes
Skin irritation:	Yes & Moderate
Eye irritation:	Yes
Inhalation Acute	No
Inhalation Chronic:	No
Ingestion:	Harmful if swallowed.
Effects of Acute Exposure:	Nil
Exposure Limit(s):	Not applicable
Irritancy of Material:	Not applicable
Sensitization to Material:	Nil
Oral rat, LD50:	790 mg/kg
Inhalation rat, LC50:	8,000 ppm/4 Hour
Skin rabbit, LD50:	3,400 mg/kg
Chronic effects on Human:	May cause damage to organs: mucus membrane, respiratory tract, skin, eyes, central nervous system.

**SECTION-12: ECOLOGICAL INFORMATION**

Chronic hazards to the aquatic environment:	Fish Product: Yes (1730 mg/liter, 96 hours)
	Aquatic Invertebrates Product: Yes (1983 mg/liter, 48 hours)
Persistence and Degradability:	BOD/COD Ratio Product: No data available.
Bio-accumulative Potential :	No data available.
Mobility in Soil:	No data available.
Other Adverse Effects:	No data available.

**SECTION-13: DISPOSAL CONSIDERATIONS**

Waste treatment methods:	
General information:	The generation of waste should be avoided or minimized wherever possible. Dispose of waste and residues in accordance with local authority requirements.
Disposal methods:	Dispose of waste and residues in accordance with local authority requirements. Incinerate. Since emptied containers retain product residue, follow label warnings even after container is emptied.



**SECTION-14: TRANSPORT INFORMATION**

General information:	Shipping descriptions may vary based on mode of transport, quantities, package size, origin and destination with safety instructions.
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**SECTION-15: REGULATORY INFORMATION**



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OSHA:	Hazardous
WHMIS Status & classification (Canada):	Controlled & Class B/2: Combustible liquid/vapor
US EPCRA:	None
Pictograms & Symbols:	 Harmful  Irritant

**SECTION-16: OTHER INFORMATION**

Information contained in this Material Safety Data Sheet is believed to be reliable but no representation, guarantee or warranties of any kind are made as to its accuracy. Suitability for a particular application or results to be obtained from them. It is upto the User / Distributor to ensure that the information contained in the Material Safety Data Sheet is relevant to the product manufactured / handled or sold by him as the case may be APL makes no warranties, expressed or implied, in respect of the adequacy of this document for any particular purpose.