

Nitrex Chemical India Limited : Material Safety Data Sheet

Date of revision: 22 March 2007

Revision No: 2

1. Identification of the substance/preparation and the company

Product: Industrial Nitrocellulose damped with n-Butanol

Use: Binder or film former in the manufacture of coatings, inks and paints

Manufacturer: Nitrex Chemicals India Limited

Address: Near Water Works, Abrama, Valsad 396001, Gujarat, India

Telephone: 91-2632-254001/253410

Facsimile: 91-2632-249564

Emergency telephone number (24 hours): +91-2632-254001/253410

2. Composition/information on ingredients

	Nitrocellulose (Cellulose nitrate, nitrogen content < 12.6 %)	n-Butanol
	70 % (w/w)	30 % (w/w)
CAS no.	9004-70-0	71-36-3
EC index no.	603-037-01-3	603-004-00-6
EINECS no.	not applicable	200-751-6
Hazard symbol	F	Xn
R-phrases	11	10-22-37/38-41-67
S-phrases	16-33-37/39	7/9-13-26-37/39-46

3. Hazards identification

HIGHLY FLAMMABLE, HARMFUL

Nitrocellulose can be ignited by flame, heat, friction, sparks or static electricity.

n-Butanol is harmful if swallowed. It is irritating to the respiratory system and skin. If contact of n-Butanol with eyes occurs there is a risk of serious damage. Overexposure of vapour may produce dizziness, drowsiness or even unconsciousness.

In case of fire and decomposition of Nitrocellulose toxic gases may be produced in some circumstances (see section 5).

Nitrocellulose decomposes in contact with strong acids and strong alkalis.

4. First- aid measures

Inhalation of vapour & materials of combustion:	Remove to fresh air and keep still. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately.
Skin contact:	Immediately flush skin with plenty of water. Remove contaminated clothing. Call a physician if irritation persists. Wash clothing before reuse.
Eye contact:	Immediately flush eyes with an eye-wash-solution or plenty of water, holding the eyelids apart, for at least 10 minutes. Call a physician.
Ingestion:	Do not induce vomiting. Give large quantities of water. Never give anything by mouth to an unconscious person. Call a physician.

5. Fire-fighting measures

Extinguishing methods

Burning nitrocellulose can only be extinguished by large quantities of water.
Unsuitable: sand, CO₂, foam or dry powder.

Specific risks

Drum lids can be blown off.

Burning nitrocellulose may produce toxic fumes in some circumstances. The fumes may contain nitrous gases if there is insufficient oxygen for efficient combustion.

After the fire is extinguished, material may be unstable, could re-ignite or produce toxic fumes. Therefore ensure that residual material is thoroughly wetted with water.

Protection of fire fighters

Fire fighters must work from the windward side. They should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

6. Accidental release measures

Personal Precautions

Avoid sources of ignition.
Do not smoke.
Ensure adequate ventilation.
Avoid contact with skin and eyes!
Avoid inhaling vapours.
Use suitable protective equipment/clothing (see section 8).

Cleaning up

Spilled nitrocellulose must be thoroughly wetted with plenty of water, swept up carefully and kept in tightly closed watertight container (see section 13). Use tools that do not produce sparks.

Environment Precautions

Prevent spilled nitrocellulose from contaminating watercourses, sewers, soil or vegetation.

7. Handling and storage

Handling

Do not smoke.

Do not drop, slide, bang or roll the drums.

Keep away from flame, heat, shock, impact, friction, sparks or static electricity.

Do not allow wetted nitrocellulose to dry out. Because, nitrocellulose becomes more sensitive in the dry state. Keep container tightly closed when not in use.

Ensure adequate ventilation.

Pull polyethylene liner, if present, carefully down over the outside of the drum.

Ensure packaging is grounded/earthed during emptying.

Do not remove the liner from the package during emptying.

Tools used with nitrocellulose should be of non-ferrous materials such as copper, brass or wood. Tools made of plastic material must not be used because of their tendency to produce static electricity.

Avoid contact with strong alkaline and acidic materials, amines or oxidising agents.

Keep quantity of product in the processing area to a minimum. This would not be expected to exceed the amount necessary for one shift.

Storage

The storage should be in accordance with national, state and local environmental regulations.

Store in a cool and well-ventilated place appropriate to the packaging material. Keep in original containers. Maximum recommended continuous storage temperature is 40 °C.

Keep away from heat including direct sunlight, flame or any source of ignition. Do not smoke in the storage area.

Nitrocellulose is not to be stored together with incompatible materials for instance strong alkaline and acidic materials, amines or oxidising agents.

Nitrocellulose is not to be stored together with flammable liquids.

Rotate inventory on a "First in/first out" basis (date of production is printed on the container label).

Once a package has been opened, the entire contents should be used as quickly as possible.

Do not open or empty containers within the storage area.

Pallet loads should be stacked no more than two high.

We recommend using the NC within one year from month of manufacture, for unopened packages (maximum temperature: 40 °C).

8. Exposure controls/Personal protection

Exposure control:

Observe exposure limits given in national legislations for n-butanol.

Concentration of n-butanol in the workplace atmosphere should be monitored.

Ensure good ventilation or use local exhaust to maintain ambient vapour concentrations below the exposure limit.

Personal protection:

Respiratory protection:	Use effective local exhaust to keep the concentration of damping agents below the exposure limits. Where suitable engineering controls are not fitted or are inadequate, wear suitable respiration equipment e. g. an approved organic vapour respirator.
Hand protection:	Wear solvent resistant gloves. For example Butyl rubber ($\geq 0,5$ mm) has been shown to be effective against heavy exposure to n-butanol, with a breakthrough time in excess of 8 hours. The gloves must be anti-static.
Eye protection	Protective goggles with side shield and or full-face shield.
Skin protection:	Flame-retarding, anti-static protective clothing and anti-static protective shoes are recommended.

9. Physical and chemical properties

Form:	fibrous, pellets, granular
Colour:	white
Odour:	of n-butanol
Bulk density:	250 - 600 kg/m ³
Vapour pressure of Butanol:	5.6 – 6.7 x 10 ² Pa at 20 °C Supplier dependant
Solubility in water:	Nitrocellulose is not soluble in water .n-butanol is partially miscible with water.
Solubility in solvents	Not applicable
pH value:	Not applicable
Flash point of n-butanol:	34 °C (Abel-Pensky)
Viscosity:	Not applicable
Explosion limits of n-butanol:	lower: 1.4 % by vol. upper: 11.3 % by vol.
Deflagration temperature:	≥ 180 °C (nitrocellulose)

10. Stability and reactivity

Stability:	Stable under recommended storage and handling conditions.
Conditions to avoid:	Avoid exposure to heat, flame, sparks, shock and friction. Stability decreases and deterioration starts with increasing temperatures. Observe recommended storage conditions.
Material to avoid:	Nitrocellulose decomposes when in contact with strong alkaline and acidic materials, amines or oxidising agents.

Hazardous decomposition products: CO, CO₂, oxides of nitrogen and other potentially toxic fumes.

11. Toxicological Information

Nitrocellulose itself is not toxic. Toxicity of the product depends on the alcohol.

Nitrocellulose:

Ingestion:	Acute toxicity LD ₅₀ oral, rat (Wistar): > 2000 mg/kg, no symptoms of poisoning (OECD Guideline for Testing of Chemicals, no. 401)
Contact with skin	Not harmful Irritation of the skin/rabbit: non-irritant (OECD Guideline for Testing of Chemicals, No. 404)
Contact with eyes	Non-irritant Irritation of the eyes/rabbit: non-irritant (OECD Guideline for Testing of Chemicals, no. 405)

n-butanol:

Ingestion	acute toxicity : LD ₅₀ oral, rat: 790 mg/kg
Inhalation	n-butanol is harmful if inhaled acute toxicity : LC ₅₀ , inhalation, rat: >6000 mg/l (4 h)
Contact with skin	Dermal rabbit > 3300 mg/kg
Contact with eyes	Irritant for human eyes.

12. Ecological information

There is no evidence to suggest that nitrocellulose has any detrimental effect on the environment. See data below for details of wetting agent environmental toxicity:

Nitrocellulose:

Fish toxicity LC ₅₀ , 96 h (fathead minnow)	> 10000 mg/l
Acute fish toxicity LC ₅₀ , 96 h (Brochydemic rerio), OECD 203	> 5000 mg/l
Acute toxicity for daphnia ED 50, 48 h (Daphnia magna water flea) OECD 202	> 10000 mg/l
Acute toxicity for algae, EC 50, 78 h, OECD 201	> 10000 mg/l
Acute bacterial toxicity, EC 50, OECD 209	> 10000 mg/l
Bio accumulation	not lipophile, no bioaccumulation potential
Log POW	< 0
Degradability	approx. 20 % after 28 days OECD 301 B
COD	460 mg/g, DIN 38409, part 41
BOD ₅	0 mg O ₂ /l at 20 mg/l, DIN 38409, H 51

Water pollution class

not hazardous to water

n-butanol

Fish toxicity LC 50	1740 mg/l (96 h) pimephales promelas
Bacteria toxicity EC 10	2250 mg/l (16hr) Pseudomonas putida
Daphnia toxicity EC 50	1880 mg/l (24 h) Daphana magna
Algea toxicity	>500 mg/l (72 h) Scenedesnus Sp
COD	1.50 mg/l
BOD ₅	1.56 mg/l
Degradability	99 %
Bioaccumulation	low
Log (POW)	0.88
Water pollution class	1

13. Disposal Considerations

Product disposal:

It is recommended that small quantities of nitrocellulose should be dissolved prior to destruction as waste NC-lacquer.

Waste disposal should be in accordance with national, state and local environmental regulation.

The empty container may retain hazardous residue. Observe all label precautions. Keep away from heat, sparks and flames. Do not weld or use cutting torch on or near container.

Remove polyethylene liner for disposal as hazardous waste.

Remove or erase all labels. Then offer container for recycling/recondition or puncture or otherwise destroy empty container and dispose of in facility permitted for non hazardous waste.

14. Transport information

Proper Shipping Name	UN No	Packing Groups	Hazard Class
Nitrocellulose with alcohol	2556	II	4.1

ADR / RID				
Proper Shipping Name	Substance Identification No	Hazzard Class	Packing Group	Classific ation Code
Nitrocellulose with alcohol	2556	4.1	II	D

IATA/IMDG				
Proper Shipping Name	UN No	Packing Groups	Hazard Class	Marine Pollutant
Nitrocellulose with alcohol	2556	II	4.1	No

15. Regulatory information

Labelling in accordance with the EEC directives:

Symbol:

- F: Hazard description: highly flammable
- Xn Hazard description: Harmful
- R 11: Highly flammable
- R 22: Harmful if swallowed
- R 37/38: Irritating to respiratory system and skin
- R 41 Risk of serious damage to eyes
- R 67 Vapours may cause drowsiness and dizziness
- S 7: Keep container tightly closed
- S 16: Keep away from sources of ignition - no smoking
- S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
- S 33: Take precautionary measures against static discharges
- S 37/39: Wear suitable gloves and eye/face protection
- S 46 If swallowed seek medical advice immediately and show the container or label

16. Other information

This data sheet was prepared in accordance with Directive 91/155/EEC, as amended by Directives 93/112/EC and 2001/58/EC.

The technical information provided in this safety data sheet should only be used for the purposes of assessing hazards with respect to safety or the environment. It should not be used as a technical specification or for engineering calculations.

Information in this document is believed to be accurate and is given in good faith but it is for the customer to satisfy itself of the suitability for its own particular purpose. The information provided is intended to describe the product for the purposes of health, safety and environmental requirements only. It is not intended, and should be construed as a warranty.



www.rniyer.com