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Material Safety Data Sheet
Nitrocellulose

Section 1 - Product Identification

Synonym	: Cellulose Nitrate, Pyroxylin, Colodium Cotton
Chemical Formula	: C6H7O2 (ONO2)3 (Trinitrat)
Company Identification	: Tradeasia International Pte. Limited
Address	: 133 Cecil Street # 12-03 Keck Seng Tower, Singapore Tel: +65-6227 6365 Fax: +65-6225 6286 Email: contact@chemtradeasia.com
Recommended use	: Laboratory chemicals, Manufacture of substances

Section 2 – Hazards Identification

2.1 Classification
Classification according to Regulation (EC) No 1272/2008
Flammable solids (Category 1), H228

2.2 Label elements
Labelling according Regulation (EC) No 1272/2008
Signal Word Warning
Hazard Statements
Flammable solid
Precautionary Statements
Wear protective gloves. Wear eye or face protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

2.3 Other hazards
N.A

Section 3 – Composition/Information on Ingredients

3.1 Composition comments
Formula : C6H7O2 (ONO2)3 (Trinitrat)
Molecular weight : 459 up to 594 g/mo
CAS-No. : 9004-70-0

Chemical Name	EC No/CAS No	Purity, %
Cellulose nitrate	9004-70-0	max. 99.9

Section 4 – First-Aid Measures

4.1. Description of first aid measures
Eye Contact

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Skin Contact

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Ingestion

Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

4.2. Most important symptoms and effects, both acute and delayed

: Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

4.3. Indication of any immediate medical attention and special treatment needed

In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Section 5 – Fire Fighting Measures

5.1. Suitable Extinguishing media

Use dry chemical, CO_2, water spray (fog) or foam.

5.2. Unsuitable extinguishing media

Do not use water jet.

5.3. Specific hazards arising from the chemical

Flammable solid.

5.4. Special protective actions for fire-fighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool

Section 6 – Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures
No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

6.2. Environmental precautions
Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3. Methods and material for containment and cleaning up
Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Section 7 – Handling and Storage

7.1. Precautions for safe Handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

7.2. Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Store in cool place.

Section 8 – Exposure Controls/Personal Protection

8.1. Appropriate engineering controls
Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

8.2. Individual protection measures, such as personal protective equipment (PPE)
Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands
Body Protection
impervious clothing, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Section 9 – Physical and Chemical Properties

9.1. Information on basic physical and chemical properties
a) Appearance Form : liquid
b) Odour : no data available
c) Odour Threshold : no data available
d) pH : no data available
e) Melting point/freezing : no data available
f) Initial boiling point : no data available
g) Flash point : 38 C
h) Evapouration rate : no data available
i) Flammability (solid, gas) : no data available
j) Upper/lower flammability or explosive limits : no data available
k) Vapour pressure : no data available
I) Vapour density : no data available
m) Relative density : no data available
n) Water solubility : no data available
o) Partition coefficient octanol/water : no data available
p) Auto-ignition temperature : no data available
q) Decomposition temperature : no data available
r) Viscosity : no data available
s) Explosive properties : no data available
t) Oxidizing properties : no data available

Section 10 – Stability and Reactivity

10.1. Reactivity
N.A

10.2. Chemical stability
Stable under recommended storage conditions

10.3. Possibility of hazardous reactions
N.A.

10.4. Conditions to avoid:
Heat, flames and sparks.

10.5. Incompatible materials
N.A.

10.6. Hazardous decomposition products
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11 – Toxicological Information

11.1 Health effects associated with ingredients

There is no evidence that Nitrocellulose can cause adverse effects, but the toxicity data on the wetting agents are known:

Ethanol:	LD50 oral (rat): 13700 mg/kg
	LD50 inhal (rat): 20,000 ppm (10h)
Isopropanol:	LD50 oral (rat): 5840 mg/kg
	LD50 oral (rabit): 6410 mg/kg

Section 12 – Ecological Information

12.1.Toxicity

Nitrocellulose: There is no evidence to suggest that NC has any detrimental effect on the environment.
Wetting agent:
Biological Oxygen Demand (BOD5): Ethanol (N.D.) Isopropanol (2.21 mg/l)
Chemical Oxygen Demand (COD): Ethanol (N.D.) Isopropanol (2.22 mg/mg)
Bacteria toxicity (EC 50): Ethanol (1000 mg/l) Isopropanol (1050 mg/l)
Fish toxicity (LC 50) : Ethanol (12340 mg/l) Isopropanol (9280 mg/l)

Section 13 – Disposal Considerations

13.1. Disposal methods

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14 – Transport Information

14.1 UN number

ADR/RID: 2059 IMDG: 2059 IATA: 2059

14.2 UN proper shipping name

ADR/RID: NITROCELLULOSE SOLUTION, FLAMMABLE
IMDG: NITROCELLULOSE SOLUTION, FLAMMABLE
IATA: Nitrocellulose solution, flammable

14.3 Transport hazard class(es)

ADR/RID: 3 IMDG: 3 IATA: 3

14.4 Packaging group

ADR/RID: II IMDG: II IATA: II

14.5 Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA: no

Section 15 – Regulatory Information

15.1. Safety, health and environmental regulations

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Section 16 : Additional Information

16.1. List of abbreviation and acronyms used in this MSDS
SDS : Safety Data Sheets
Index N° : atomic number of the element most characteristic of the properties of the substance
CAS No : Chemical Abstracts Service number
EC No : EINECS Number : European Inventory of Existing Commercial Substances
Repr. Cat. 2 : Substance presumed human reproductive toxicant
Acute Oral Cat. 5 : Substance which is of relatively low acute oral toxicity.
GHS : Globally Harmonised System of Classification and Labelling
LD_{50} : Median Lethal Dose
LC_{50} : Lethal Concentration, 50%
N.A. : Not Applicable
OSHA : Occupational Safety & Health Administration
Cal OSHA : The State of California Division of Occupational Safety and Health (DOSH)
PEL : Permissible Exposure Limits
ACGIH : American Conference of Governmental Industrial Hygienists
TLV : Threshold Limit Value
Japanese MITI : Japanese Ministry of International Trade and Industry
EC_{50} : Half maximal effective concentration
UN : United Nations
U.S. EPA TSCA Inventory: Inventory of the chemical substances manufactured or processed in the United States according to Toxic Substances Control Act compiled and published under the autority of the Environmental Protection Agency
Canadian DSL: Canadian Domestic Substances List

16.2. List of relevant hazard statements and precautionary statements used in this MSDS
Hazard Statement
H361 d: Suspected of damaging the unborn child
H319: Causes serious eye irritation
H303: May be harmful if swallowed
Precautionary Statements
Prevention
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P281: Use personal protective equipment as required.
P264: Wash eyes thoroughly after handling.
P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response
P308 + P313: If exposed or concerned: get medical advice/attention.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313: If eye irritation persists: Get medical advice/attention.
Storage
P405: Store locked up.
Disposal
P501: Dispose of contents/container to in accordance with local regulations.

16.3. References

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2. Denton SM (1996). Acute oral toxicity study in the rat: anhydrous boric acid. Final report. Report no.: 1341/7-1032.
3. National Toxicology Program (NTP) – Technical Report Series No. TR324, NIH Publication No. 88 2580 (1987), PB88 213475/XAB
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For general information on the toxicology of borates see ECETOC Technical Report No. 63 (1995); Patty's Industrial Hygiene and Toxicology, 4th Edition Vol. II, (1994) Chap. 42, 'Boron'.

16.4. Disclaimer of Liability

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