

Material Safety Data Sheet

Nitrocellulose Membrane

1. Product and company identification

Product name : Nitrocellulose Membrane
Synonym : cellulose, esters, nitrate ; nitrocellulose; cellulose nitrate; cellulose tetranitrate; nitron; pyroxylin
Chemical formula : HNO3.xUnspecified
Supplier : Thermo Fisher Scientific
Pierce Biotechnology
P.O. Box 117
Rockford, IL 61105
United States
815.968.0747 or
800.874.3723
Manufacturer : Thermo Fisher Scientific
Pierce Biotechnology
P.O. Box 117
Rockford, IL 61105
United States
815.968.0747 or
800.874.3723
Code : 0077010 0077011 0077012 0088013 0088014 0088015 0088018 0088024 0088025
2801770
MSDS # : 1160
Validation date : 8/25/2011.
Print date : 8/25/2011.
Responsible name : MSDS Specialist
In case of emergency : **CHEMTREC:**
800.424.9300
OUTSIDE US:
703.527.3887
Material uses : Refer to the instruction
booklet for proper and
intended use. Otherwise,
contact supplier for specific
applications.
Product type : Solid.

2. Hazards identification

Emergency overview

Physical state : Solid. [Fibrous sheets.]
Color : White to yellowish.
Odor : Odorless.
Signal word : WARNING!
Hazard statements : FLAMMABLE SOLID. MAY CAUSE EYE AND SKIN IRRITATION. CAN CAUSE TARGET ORGAN DAMAGE.
Precautionary measures : Do not eat, drink or smoke when using this product. Avoid contact with eyes, skin and clothing. Keep away from heat, sparks and flame. Keep container closed. Wash thoroughly after handling.
OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.
Potential acute health effects

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2. Hazards identification

Inhalation : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Ingestion : No known significant effects or critical hazards.
Skin : Slightly irritating to the skin.
Eyes : Slightly irritating to the eyes.
Potential chronic health effects
Chronic effects : Can cause target organ damage.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Teratogenicity : No known significant effects or critical hazards.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.
Target organs : Causes damage to the following organs: kidneys, central nervous system (CNS). May cause damage to the following organs: upper respiratory tract.
Over-exposure signs/symptoms
Inhalation : No specific data.
Ingestion : No specific data.
Skin : Adverse symptoms may include the following:
irritation
redness
Eyes : Adverse symptoms may include the following:
irritation
watering
redness
Medical conditions aggravated by over-exposure : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

3. Composition/information on ingredients

United States

Name	CAS number	%
Cellulose nitrate Plastic scrap	9004-70-0	98 - 100

Canada

Name	CAS number	%
Cellulose nitrate Plastic scrap	9004-70-0	98 - 100

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

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4. First aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
- Notes to physician** : 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.

5. Fire-fighting measures

- Flammability of the product** : Flammable solid. Runoff to sewer may create fire or explosion hazard.
- Extinguishing media**
- Suitable** : Use dry chemical, CO₂, water spray (fog) or foam.
- Not suitable** : Do not use water jet.
- Special exposure hazards** : 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.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials: nitrogen oxides
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
- Special remarks on fire hazards** : FLAMMABLE. Emits highly corrosive fumes when heated to decomposition. Emits highly toxic fumes when heated to decomposition.
- Special remarks on explosion hazards** : Dangerous fire and explosion risk when dry. Burns or explodes when heated to decomposition.

6. Accidental release measures

- Personal precautions** : 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 (see Section 8).
- 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).
- Methods for cleaning up**
- Small spill** : Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.

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Pierce Biotechnology Inc. 3747 N. Meridian Road 61105 (815) 968-7316 Fax

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6. Accidental release measures

- Large spill** : Move containers from spill area. 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. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not ingest. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store between the following temperatures: 2 to 25°C (35.6 to 77°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

Canada

Occupational exposure limits

No exposure limit value known.

Consult local authorities for acceptable exposure limits.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Engineering measures** : 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.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Personal protection**
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

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8. Exposure controls/personal protection

- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

- Physical state** : Solid. [Fibrous sheets.]
- Flash point** : Closed cup: 40°C (104°F)
- Auto-ignition temperature** : 160 to 170°C (320 to 338°F)
- Flammable limits** : Lower: 3.5%
Upper: 15%
- Color** : White to yellowish.
- Odor** : Odorless.
- Molecular weight** : 504.3 g/mole
- Molecular formula** : HNO₃.xUnspecified
- Melting/freezing point** : Decomposes.
- Relative density** : 1.66
- Vapor pressure** : 5.9 kPa (44 mm Hg) [20°C]
- Solubility** : Insoluble in the following materials: cold water and hot water.

10. Stability and reactivity

- Chemical stability** : The product is stable.
- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame).
- Incompatible materials** : Reactive or incompatible with the following materials: oxidizing materials
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

11. Toxicological information

United States

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Cellulose nitrate Plastic scrap	LD50 Oral	Rat	>3.2 g/kg	-

Conclusion/Summary : Not available.

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11. Toxicological information

- Chronic toxicity**
 - Conclusion/Summary** : Not available.
- Irritation/Corrosion**
 - Conclusion/Summary** : Not available.
- Sensitizer**
 - Conclusion/Summary** : Not available.
- Carcinogenicity**
 - Conclusion/Summary** : Not available.
- Mutagenicity**
 - Conclusion/Summary** : Not available.
- Teratogenicity**
 - Conclusion/Summary** : Not available.
- Reproductive toxicity**
 - Conclusion/Summary** : Not available.

Canada

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Cellulose nitrate Plastic scrap	LD50 Oral	Rat	>3.2 g/kg	-

Conclusion/Summary : Not available.

- Chronic toxicity**
 - Conclusion/Summary** : Not available.
- Irritation/Corrosion**
 - Conclusion/Summary** : Not available.
- Sensitizer**
 - Conclusion/Summary** : Not available.
- Carcinogenicity**
 - Conclusion/Summary** : Not available.
- Mutagenicity**
 - Conclusion/Summary** : Not available.
- Teratogenicity**
 - Conclusion/Summary** : Not available.
- Reproductive toxicity**
 - Conclusion/Summary** : Not available.

12. Ecological information

Ecotoxicity : No known significant effects or critical hazards.

United States

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Cellulose nitrate Plastic scrap	Acute EC50 579000 ug/L Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours

Conclusion/Summary : Not available.

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12. Ecological information

Persistence/degradability

Conclusion/Summary : Not available.

Canada

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Cellulose nitrate Plastic scrap	Acute EC50 579000 ug/L Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours

Conclusion/Summary : Not available.

Persistence/degradability

Conclusion/Summary : Not available.

Other adverse effects : No known significant effects or critical hazards.

13. Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. 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.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*
DOT Classification	UN3270	NITROCELLULOSE MEMBRANE FILTERS	4.1	II
IATA-DGR Class	UN3270	NITROCELLULOSE MEMBRANE FILTERS	4.1	II

PG* : Packing group

15. Regulatory information

United States

HCS Classification : Flammable solid
Target organ effects

U.S. Federal regulations : **TSCA 8(a) IUR Exempt/Partial exemption**: This material is listed or exempted.
United States inventory (TSCA 8b): This material is listed or exempted.

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15. Regulatory information

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Cellulose nitrate Plastic scrap
SARA 311/312 MSDS distribution - chemical inventory - hazard identification:
Cellulose nitrate Plastic scrap: Fire hazard

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

State regulations

Massachusetts : This material is listed.

New York : This material is not listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

United States inventory (TSCA 8b) : This material is listed or exempted.

Canada

WHMIS (Canada) : Class B-4: Flammable solid.
Class F: Dangerously reactive material.

Canadian lists

Canadian NPRI : This material is not listed.

CEPA Toxic substances : This material is not listed.

Canada inventory : This material is listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International regulations

International lists : **Australia inventory (AICS)**: This material is listed or exempted.

China inventory (IECSC): This material is listed or exempted.

Japan inventory: This material is listed or exempted.

Korea inventory: This material is listed or exempted.

New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.

Philippines inventory (PICCS): This material is listed or exempted.

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16. Other information

Label requirements : FLAMMABLE SOLID. MAY CAUSE EYE AND SKIN IRRITATION. CAN CAUSE TARGET ORGAN DAMAGE.

Hazardous Material Information System (U.S.A.) :

Health	1
Flammability	4
Physical hazards	0

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :



References : -The Sigma-Aldrich Library of Chemical Safety Data, Edition II.

Other special considerations : TSCA (Toxic Substance Control Act): This product is listed on the TSCA Inventory. EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances. OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Date of printing : 8/25/2011.

Date of issue : 8/25/2011.

Date of previous issue : 1/7/2011.

Version : 1.01

Prepared by : MSDS Specialist

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.