

SAFETY DATA SHEET

1. Identification

Product identifier: COLLODION, U. S. P.

Other means of identification

Product No.: 4560, 9202

Recommended use and restriction on use

Recommended use: Not available.

Restrictions on use: Not known.

Details of the supplier of the safety data sheet

Manufacturer

Company Name: Avantor Performance Materials, Inc.
Address: 3477 Corporate Parkway, Suite 200
Center Valley, PA 18034

Telephone: Customer Service: 855-282-6867

Fax: 610-573-2610
Contact Person: Environmental Health & Safety
E-mail: info@avantormaterials.com

Emergency telephone number:

24 Hour Emergency: 908-859-2151
Chemtrec: 800-424-9300

2. Hazard(s) identification

Hazard Classification

Physical Hazards

Flammable liquids Category 2

Health Hazards

Carcinogenicity Category 1A

Label Elements

Hazard Symbol:



Signal Word: Danger

Hazard Statement: Highly flammable liquid and vapor.
May cause cancer.

Precautionary Statement

- Prevention:** Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wear protective gloves/protective clothing/eye protection/face protection. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required.
- Response:** IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If exposed or concerned: Get medical advice/attention.
- Storage:** Store in well-ventilated place. Keep cool. Store locked up.
- 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.
- Other hazards which do not result in GHS classification:** None.

3. Composition/information on ingredients

Mixtures

Chemical Identity	Common name and synonyms	CAS number	Content in percent (%)*
DIETHYL ETHER		60-29-7	60 - 100%
ETHANOL		64-17-5	15 - 40%
NITROCELLULOSE		9004-70-0	1 - 10%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

- General information:** Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.
- Ingestion:** Rinse mouth. Call a physician or poison control center immediately. Never give liquid to an unconscious person. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
- Inhalation:** Move to fresh air.
- Skin Contact:** Take off immediately all contaminated clothing. Wash skin thoroughly with soap and water. If skin irritation occurs: Get medical advice/attention.
- Eye contact:** Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.

Most important symptoms/effects, acute and delayed

- Symptoms:** In high concentrations, vapors and aerosol mists have a narcotic effect and may cause headache, fatigue, dizziness and nausea.
- Hazards:** Irritant.

Indication of immediate medical attention and special treatment needed

- Treatment:** Symptoms may be delayed.

5. Fire-fighting measures

General Fire Hazards: Highly flammable liquid and vapor.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Extinguish with alcohol-resistant foam, carbon dioxide or dry powder.

Unsuitable extinguishing media: Avoid water in straight hose stream; will scatter and spread fire.

Specific hazards arising from the chemical: Vapors may cause a flash fire or ignite explosively. Vapors may travel considerable distance to a source of ignition and flash back. Prevent buildup of vapors or gases to explosive concentrations.

Special protective equipment and precautions for firefighters

Special fire fighting procedures: Use water spray to keep fire-exposed containers cool. Water may be ineffective in fighting the fire. Fight fire from a protected location. Move containers from fire area if you can do so without risk.

Special protective equipment for fire-fighters: Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Ventilate closed spaces before entering them. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep upwind.

Methods and material for containment and cleaning up: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Dike far ahead of larger spill for later recovery and disposal. Eliminate all ignition sources if safe to do so.

Notification Procedures: Dike for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk.

Environmental Precautions: Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid release to the environment.

7. Handling and storage

Precautions for safe handling: Do not taste or swallow. Wash hands thoroughly after handling. Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Use personal protective equipment as required. Avoid contact with eyes. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Take precautionary measures against static discharges.

Conditions for safe storage, including any incompatibilities: Keep in a cool, well-ventilated place. Keep material from heat, light, sparks and flame. Keep containers tightly closed.

8. Exposure controls/personal protection

Control Parameters

SDS_US - SDSMIX000661

Occupational Exposure Limits

Chemical Identity	type	Exposure Limit Values	Source
DIETHYL ETHER	TWA	400 ppm	US. ACGIH Threshold Limit Values (2011)
	STEL	500 ppm	US. ACGIH Threshold Limit Values (2011)
	PEL	400 ppm 1,200 mg/m ³	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	TWA	400 ppm 1,200 mg/m ³	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	STEL	500 ppm 1,500 mg/m ³	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	STEL	1,000 ppm	US. ACGIH Threshold Limit Values (2011)
ETHANOL	REL	1,900 mg/m ³	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	PEL	1,900 mg/m ³	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	TWA	1,900 mg/m ³	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)

Appropriate Engineering Controls

Use explosion-proof ventilation equipment to stay below exposure limits.

Individual protection measures, such as personal protective equipment

General information:

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area. If exposure limits have not been established, maintain airborne levels to an acceptable level. Use explosion-proof ventilation equipment.

Eye/face protection:

Wear safety glasses with side shields (or goggles).

Skin Protection

Hand Protection:

Chemical resistant gloves

Other:

Use protective gloves, goggles and suitable protective clothing.

Respiratory Protection:

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

Hygiene measures:

Do not eat, drink or smoke when using the product. Wash hands after handling. Observe good industrial hygiene practices. Wash hands before breaks and immediately after handling the product. Avoid contact with eyes. When using do not smoke. Do not handle until all safety precautions have been read and understood. Obtain special instructions before use.

9. Physical and chemical properties

Appearance

Physical state:

liquid

Form:

liquid

Color:

Colorless to slightly yellow

Odor:

Ether odor

Odor threshold:

No data available.

pH:

not applicable

Melting point/freezing point:

-123 °C

Initial boiling point and boiling range:	36.1 °C
Flash Point:	< -32 °C
Evaporation rate:	37.5 n-butyl acetate=1
Flammability (solid, gas):	Flammable liquid.
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	36.0 %(V)
Flammability limit - lower (%):	1.9 %(V)
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	57.2 kPa
Vapor density:	2.6 AIR=1
Relative density:	0.77 (20 °C)
Solubility(ies)	
Solubility in water:	Slightly Soluble
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Auto-ignition temperature:	180 - 190 °C
Decomposition temperature:	No data available.
Viscosity:	No data available.
Other information	
Explosive properties:	Not explosive.
Oxidizing properties:	Not an oxidizer.

10. Stability and reactivity

Reactivity:	No dangerous reaction known under conditions of normal use.
Chemical Stability:	Material is stable under normal conditions.
Possibility of Hazardous Reactions:	Hazardous polymerization does not occur.
Conditions to Avoid:	Heat, sparks, flames. Contact with air. Shocks and physical damage. Sunlight. Keep away from sources of ignition - No smoking.
Incompatible Materials:	Chlorine. Air and oxidizers. Strong acids. Strong bases. Amines.
Hazardous Decomposition Products:	Thermal decomposition may produce oxides of carbon and nitrogen. Cyanides.

11. Toxicological information

Information on likely routes of exposure

Ingestion:	Harmful if swallowed.
Inhalation:	May cause irritation to the respiratory system.
Skin Contact:	Causes mild skin irritation.
Eye contact:	Causes serious eye irritation.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral

Product: No data available.
Specified substance(s):
 DIETHYL ETHER LD 50 (Rat): 3,230 - 3,920 mg/kg
Specified substance(s):
 ETHANOL LD 50 (Rat): 6,200 mg/kg
 LD 50 (Guinea Pig): 5,600 mg/kg
 LD 50 (Rabbit): 6,300 mg/kg

Dermal

Product: No data available.
Specified substance(s):
 ETHANOL LDLo (Rabbit): 20,000 mg/kg

Inhalation

Product: No data available.
Specified substance(s):
 DIETHYL ETHER LC 50 (Rat, 4 h): 32000 ppm
Specified substance(s):
 ETHANOL LC 50 (Rat, 10 h): 20000 ppm
 LC L0 (Guinea Pig,): 21900 ppm
 LC 50 (Mouse, 4 h): 0.039 mg/l

Repeated dose toxicity

Product: No data available.

Skin Corrosion/Irritation

Product: May cause skin irritation.

Serious Eye Damage/Eye Irritation

Product: May irritate eyes.

Respiratory or Skin Sensitization

Product: Not a skin sensitizer.

Carcinogenicity

Product: May cause cancer.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

ETHANOL Overall evaluation: 1. Carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens:

ETHANOL Known To Be Human Carcinogen.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):

No carcinogenic components identified

Germ Cell Mutagenicity

In vitro
Product: No mutagenic components identified

In vivo
Product: No mutagenic components identified

Reproductive toxicity

Product: May damage fertility or the unborn child.

Specific Target Organ Toxicity - Single Exposure

Product: None known.

Specific Target Organ Toxicity - Repeated Exposure

Product: None known.

Aspiration Hazard

Product: May be fatal if swallowed and enters airways.

Other effects: None known.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product: No data available.

Specified substance(s):

DIETHYL ETHER
LC 50 (Fathead minnow (*Pimephales promelas*), 96 h): 2,560 mg/l Mortality
LC 50 (Bluegill (*Lepomis macrochirus*), 96 h): > 10,000 mg/l Mortality
LC 50 (Carp (*Leuciscus idus melanotus*), 48 h): 2,840 mg/l Mortality

ETHANOL
LC 50 (Rainbow trout,donaldson trout (*Oncorhynchus mykiss*), 96 h): 12,000 - 16,000 mg/l Mortality
LC 50 (Fathead minnow (*Pimephales promelas*), 96 h): 13,480 mg/l Mortality
LC 50 (Carp (*Leuciscus idus melanotus*), 48 h): 8,140 mg/l Mortality

Aquatic Invertebrates

Product: No data available.

Specified substance(s):

ETHANOL
LC 50 (Brine shrimp (*Artemia franchiscana*), 48 h): 25.5 mg/l Mortality
LC 50 (Water flea (*Daphnia magna*), 48 h): 7,560 - 12,600 mg/l Mortality
LC 50 (Water flea (*Daphnia magna*), 96 h): > 100 mg/l Mortality
EC 50 (Water flea (*Daphnia magna*), 48 h): > 10,000 mg/l Intoxication

Chronic hazards to the aquatic environment:

Fish

Product: No data available.

Aquatic Invertebrates

Product: No data available.

Toxicity to Aquatic Plants

Product: No data available.

Persistence and Degradability

Biodegradation Product: There are no data on the degradability of this product.

BOD/COD Ratio Product: Not determined.

Bioaccumulative Potential

Bioconcentration Factor (BCF) Product: No data available on bioaccumulation.

Partition Coefficient n-octanol / water (log Kow) Product: No data available.

Specified substance(s):
DIETHYL ETHER Log Kow: 0.89
ETHANOL Log Kow: -0.31

Mobility in Soil: No data available.

Other Adverse Effects: Harmful to aquatic organisms.

13. Disposal considerations

Disposal instructions: Discharge, treatment, or disposal may be subject to national, state, or local laws.

Contaminated Packaging: Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN Number: UN 1993
UN Proper Shipping Name: Flammable liquids, n.o.s.(DIETHYL ETHER, ETHYL ALCOHOL)
Transport Hazard Class(es)
Class(es): 3
Label(s): 3
Packing Group: II
Marine Pollutant: Not a Marine Pollutant
Special precautions for user: -

IMDG

UN Number: UN 1993
UN Proper Shipping Name: FLAMMABLE LIQUID, N.O.S.(DIETHYL ETHER, ETHYL ALCOHOL)
Transport Hazard Class(es)
Class(es): 3
Label(s): 3
EmS No.: F-E, S-E
Packing Group: II
Marine Pollutant: Not a Marine Pollutant
Special precautions for user: -

IATA

UN Number:	UN 1993
Proper Shipping Name:	Flammable liquid, n.o.s.(DIETHYL ETHER, ETHYL ALCOHOL)
Transport Hazard Class(es):	
Class(es):	3
Label(s):	3
Marine Pollutant:	Not a Marine Pollutant
Packing Group:	II
Special precautions for user:	–

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
 None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):

<u>Chemical Identity</u>	<u>Reportable quantity</u>
DIETHYL ETHER	100 lbs.
ETHANOL	100 lbs.
NITROCELLULOSE	100 lbs.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Acute (Immediate)
 Chronic (Delayed)
 Fire
 Reactive

SARA 302 Extremely Hazardous Substance

None present or none present in regulated quantities.

SARA 304 Emergency Release Notification

<u>Chemical Identity</u>	<u>Reportable quantity</u>
DIETHYL ETHER	100 lbs.
ETHANOL	100 lbs.
NITROCELLULOSE	100 lbs.

SARA 311/312 Hazardous Chemical

<u>Chemical Identity</u>	<u>Threshold Planning Quantity</u>
DIETHYL ETHER	10000 lbs
ETHANOL	10000 lbs

SARA 313 (TRI Reporting)

None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

None present or none present in regulated quantities.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

<u>Chemical Identity</u>	<u>Reportable quantity</u>
DIETHYL ETHER	10000 lbs

US State Regulations

US. California Proposition 65

ETHANOL	Carcinogenic.
ETHANOL	Developmental toxin.

US. New Jersey Worker and Community Right-to-Know Act

Chemical Identity

DIETHYL ETHER
ETHANOL
NITROCELLULOSE

US. Massachusetts RTK - Substance List

Chemical Identity

DIETHYL ETHER
ETHANOL
NITROCELLULOSE

US. Pennsylvania RTK - Hazardous Substances

Chemical Identity

DIETHYL ETHER
ETHANOL
NITROCELLULOSE

US. Rhode Island RTK

Chemical Identity

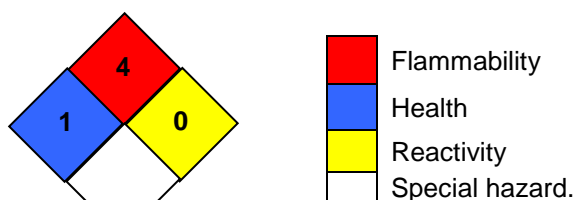
DIETHYL ETHER
ETHANOL
NITROCELLULOSE

Inventory Status:

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
EINECS, ELINCS or NLP:	On or in compliance with the inventory
Japan (ENCS) List:	On or in compliance with the inventory
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Canada NDSL Inventory:	Not in compliance with the inventory.
Philippines PICCS:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
Japan ISHL Listing:	On or in compliance with the inventory
Japan Pharmacopoeia Listing:	Not in compliance with the inventory.

16. Other information, including date of preparation or last revision

NFPA Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible

Issue Date: 06-30-2015
Revision Date: No data available.
Version #: 2.1
Further Information: No data available.

Disclaimer:

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