Product Safety Assessment

n-Propyl Acetate

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Names
- CAS No. 109-60-4
- n-Propyl acetate
- Propyl acetate
- EC No. 203-686-1
- 1-Acetoxypropane
- Acetic acid, n-propyl ester

Product Overview
- Propyl acetate is a colorless, volatile liquid with an odor similar to acetone. For further details, see Product Description.
- Propyl acetate is used mainly as a solvent for liquid rotogravure and flexographic printing inks. Other applications include coatings, wood lacquers, aerosol sprays, nail care, cosmetics, and fragrances. For further details, see Product Uses.
- Because propyl acetate is used to manufacture a broad range of products, worker exposure is possible. Consumers could be exposed to propyl acetate by using cosmetics, fragrances, or other products made with it. For further details, see Exposure Potential.
- Eye contact with propyl acetate liquid or vapor may cause severe irritation and corneal damage. Brief skin contact is essentially nonirritating. Prolonged skin contact may cause severe irritation with local redness and discomfort, especially if trapped under clothing or gloves. It is unlikely to result in absorption of harmful amounts. If swallowed, propyl acetate has very low toxicity as harmful effects not anticipated from swallowing small amounts; however, aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia. Excessive inhalation of propyl acetate vapors may cause irritation to the nose, throat, and lungs, as well as narcotic effects. For further details, see Health Information.
- Propyl acetate is readily biodegradable, unlikely to bioaccumulate in the food chain, and is slightly toxic or harmful to fish and aquatic organisms.
- Propyl acetate liquid and vapor are flammable. Propyl acetate is stable at recommended temperatures and pressures. Propyl acetate is incompatible with alkali metal hydroxides, such as sodium hydroxide, as well as nitric acid and strong oxidizers, and contact should be avoided. For further details, see Physical Hazard Information.

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Manufacture of Product

- **Capacity** – Dow manufactures propyl acetate at facilities in Texas City, Texas, in the United States.3
- **Process** – Dow manufactures propyl acetate by reacting acetic acid with n-propanol in the presence of a catalyst. The reaction is as follows:

\[
\text{CH}_3\text{COOH} + \text{HO-C}_3\text{H}_7 \rightleftharpoons \text{CH}_3\text{C}_3\text{H}_7\text{CO} \rightleftharpoons \text{H}_2\text{O}
\]

Acetic acid  n-Propyl alcohol  n-Propyl acetate  Water

Product Description

Propyl acetate is a colorless liquid with an odor similar to acetone. It evaporates easily and does not mix well with water.

Product Uses

Propyl acetate is mainly used as a solvent in liquid rotogravure and flexographic printing inks. Rotogravure inks are used to print magazines, postcards, and corrugated cardboard packaging. Other uses for propyl acetate include:
- Coatings
- Wood lacquers
- Aerosol sprays
- Nail care
- Cosmetics and personal-care products
- Fragrances
- Industrial process solvent

Exposure Potential

Propyl acetate is used in the production of industrial and consumer products. Based on the uses for propyl acetate, the public could be exposed through:

- **Workplace exposure** – Exposure can occur either in a propyl acetate manufacturing facility or in the various industrial or manufacturing facilities that use it. Those working with propyl acetate in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures. Each facility should have a thorough training program for employees and appropriate work processes and safety equipment in place to limit unnecessary exposure. See Health Information.
- **Consumer exposure to products containing propyl acetate** – Dow does not sell propyl acetate for direct consumer use. Consumers could be exposed to propyl acetate by using nail polish, cosmetics, aerosol sprays, contact cement, or other products containing it. See Health Information.
- **Environmental releases** – Propyl acetate may be released to air by evaporation from products containing it. Although the substance is moderately soluble, when introduced to water, it will have a tendency to evaporate. Because the material is highly biodegradable, it will be effectively treated by sewage treatment plants. See Environmental, Health, and Physical Hazard Information.
- **Large release** – Industrial spills or releases are infrequent and generally contained. If a large spill does occur, dike the area to contain the spilled material. Isolate the area and evacuate.
unnecessary personnel. Eliminate all sources of ignition. Ground and bond all containers and handling equipment. Keep upwind of the spill and ventilate the area. If available, use foam to smother or suppress fumes. Use explosion-proof equipment to pump the recovered material into suitable and properly labeled containers. Warn the public of any downwind explosion hazard. Use appropriate safety equipment.

- **In case of fire** – Keep people away and deny unnecessary entry. Propyl acetate vapor is an explosion hazard. Vapors are heavier than air and may travel long distances and accumulate in low-lying areas. Wear positive-pressure, self-contained breathing apparatus (SCBA) and protective fire-fighting clothing or fight fire from a safe distance. Use water fog or fine spray, dry-chemical or carbon-dioxide fire extinguishers, or foam. **Do not use** a direct water stream as it may spread the fire. Follow emergency procedures carefully. See Environmental, Health, and Physical Hazard Information.

For more information, see the Safety Data Sheet.

**Health Information**

*Eye and Skin Contact* – Eye contact with propyl acetate liquid or vapor may cause severe irritation and severe corneal injury is possible. Brief skin contact is essentially nonirritating. Prolonged skin contact may cause severe irritation with local redness and discomfort, especially if the material is trapped under clothing or gloves. Prolonged skin contact is unlikely to result in absorption of harmful amounts.

*Inhalation* – Excessive inhalation of propyl acetate may cause irritation to the nose, throat, and lungs. Anesthetic effects such as dizziness and drowsiness are possible.

*Ingestion* – Propyl acetate has very low toxicity if small amounts are swallowed; however, aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

*Toxicity Information* – Birth defects have been reported in rats when a metabolite of propyl acetate, n-propanol, was tested at extremely high concentrations. At progressively lower concentrations there were no birth defects; these concentrations of n-propanol exceed relevant human dose levels. The metabolite of propyl acetate, n-propanol, has also been shown to interfere with fertility in males, however the effects are reversible. These concentrations of n-propanol also exceed relevant human dose levels.

For more information, see the Safety Data Sheet.

**Environmental Information**

Propyl acetate is moderately volatile, and will evaporate from products containing it. Although the substance is moderately soluble, when introduced to water, it will have a tendency to evaporate from water. The substance has minimal tendency to bind to soil or sediment.

Propyl acetate is unlikely to persist in the environment. The substance is highly biodegradable, which suggests the chemical will be removed from water and soil environments, including biological wastewater treatment plants.

Propyl acetate is not likely to accumulate in the food chain (bioconcentration potential is low) and is slightly toxic or harmful to fish and other aquatic organisms on an acute basis.

For more information, see the Safety Data Sheet.
Physical Hazard Information

Propyl acetate liquid and vapor are flammable. Propyl acetate vapors are an explosion hazard. Vapors are heavier than air and can travel long distances and accumulate in low-lying areas. It is stable at recommended temperatures and pressures. Exposure to elevated temperatures can cause the product to decompose.

Propyl acetate is incompatible with alkali metal hydroxides, such as sodium hydroxide, as well as nitric acid and strong oxidizers, and contact should be avoided.

For more information, see the Safety Data Sheet.

Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of propyl acetate. These regulations may vary by city, state, country, or geographic region. Information may be found by consulting the relevant Safety Data Sheet, Technical Data Sheet, or Contact Us.

Additional Information

- Contact Us (http://www.dow.com/oxysolvents/contact/index.htm).
- n-Propyl Acetate Technical Data Sheet, The Dow Chemical Company, Form No. 327-00024-0812. (http://msdssearch.dow.com/PublishedLiteratureDOWCOM/dh_08ac/0901b803808aca7a.pdf?filepath=oxysolvents/pdfs/noreg/327-00024.pdf&fromPage=GetDoc)

For more business information about propyl acetate, visit Dow's Oxygenated Solvents website: www.dow.com/oxysolvents.
References

1. n-Propyl Acetate Technical Data Sheet, The Dow Chemical Company, Form No. 327-00024-08121
3. Propyl Acetate Safety Data Sheet for the US, The Dow Chemical Company

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NOTICES:

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