

Product Safety Summary

Peracetic Acid

CAS No. 79-21-0

This Product Safety Summary is intended to provide a general overview of the chemical substance. The information on the summary is basic information and is not intended to provide emergency response information, medical information or treatment information. The summary should not be used to provide in-depth safety and health information. In-depth safety and health information can be found on the Material Safety Data Sheet (MSDS) for the chemical substance.

Names

- Peracetic acid
- Peroxyacetic acid
- Ethaneperoxy acid
- Peroxyethanoic acid
- Equilibrium peracetic acid
- PAA
- Proxitane[®]

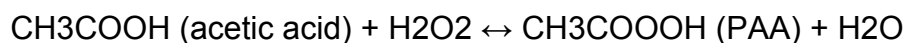
Product Overview

Solvay Chemicals, Inc. peracetic acid (PAA) is an equilibrium mixture of peracetic acid, hydrogen peroxide, acetic acid and water. PAA can be used as an oxidant in chemical processes or as a bleaching agent. However, most of the PAA sold in North America is used as an antimicrobial, disinfectant or biocide. In the United States, these applications are typically regulated by the Food and Drug Administration (FDA) or the Environmental Protection Agency (EPA). Solvay Chemicals does not sell PAA directly to consumers.

Exposure to PAA can cause severe irritation, burns and other health effects to the skin, eyes and respiratory tract. Ingestion should be avoided at all concentrations. Most PAA is consumed in applications where it is used; however, it is not persistent in the environment and decomposes to acetic acid, water and oxygen when exposed to soils, sediments and surface or ground waters.

Manufacture of Product

PAA is manufactured by adding hydrogen peroxide (H₂O₂) to acetic acid. The reaction is as follows



Solvay Chemicals PAA products are all equilibrium mixtures of PAA, hydrogen peroxide, acetic acid and water.

Product Description

PAA solutions are clear, colorless liquids that have strong, vinegar like odors. Solvay Chemicals typically manufactures PAA in concentrations of 5 to 15%. Typical physical properties for some of these solutions are provided in Table I.

Table I: Typical physical properties for some 5%, 12% and 15% PAA solutions.

PAA Content	5%	12%	15%
H₂O₂ Content	20%	20%	15%
Acetic Acid Content	10%	20%	30%
Boiling Point	Product decomposes before boiling		
Freezing Point	<-4°F/<-20°C	<-4°F/<-20°C	<-4°F/<-20°C
Flash Point	N/A	N/A	241°F
Density (lbs/gal @ 68° F)	9.18	9.26	9.35
SADT*	≥131°F	≥131°F	≥131°F

* Self-accelerating decomposition temperature

Product Uses

PAA is an effective bleaching agent and oxidizer, but it is most commonly used as an antimicrobial, disinfectant or biocide in a variety of applications, including some healthcare, food and water treatment applications. In the United States, these applications are regulated by the Food and Drug Administration (FDA) or the Environmental Protection Agency (EPA).



Exposure Potential

- **Workplace exposure** – Exposure can occur at a PAA manufacturing facility, a manufacturing, packaging or treatment facility that stores, packages or uses PAA, or during transport. Most of the production and manufacturing processes where PAA is used are closed. Treatment facilities that use PAA either employ closed systems or take measures to reduce or eliminate the evolution of PAA vapor. Persons involved in maintenance, sampling and testing activities, or in the loading and unloading of hydrogen peroxide PAA vessels are at greater risk of exposure. Following good industrial hygiene practices will minimize the likelihood of exposure; however, persons involved in higher risk activities should always wear proper personal protective equipment such as rubber gloves and boots, an acid or slicker suit, goggles and a hard hat. In instances where the potential for splashes is high, a face shield should also be worn.
- **Consumer exposure to products containing PAA** – Solvay Chemicals does not sell PAA directly to consumers. PAA is used as a sterilant, disinfectant or biocide in some food and drinking water applications; however, PAA residuals usually decompose to acetic acid, oxygen and water. Consequently, the probability of consumer exposures to PAA is low.
- **Environmental releases** – Spills of PAA should be contained and isolated from waterways, sewer drains and any flammable or combustible materials. Small spills should be diluted with large amounts of water and disposed of in accordance with applicable local, state or federal regulations. Do not use absorbents or adsorbents to soak up PAA spills. Absorbents and adsorbents may contain organics that can react with the residual PAA and hydrogen peroxide in PAA solutions. Rinse PAA contaminated cloth or paper towels with water until they are free of any residuals. Failure to do so may result in a fire once they dry. Persons attempting to clean up PAA spills should wear proper personal protective equipment, including respiratory protection (See guidelines in the Workplace exposure section of this document or the [Material Safety Data Sheet](#)).
- **Large spills** – Large spills of PAA should be contained and isolated from waterways, sewer drains and any flammable or combustible materials by constructing dikes of earth, sand or some other inert material. Diluting large spills with water will reduce the evolution of steam, oxygen, acetic acid, PAA and/or hydrogen peroxide vapors. Emergency responders should wear proper personal protective equipment, including respiratory protection, and should only approach spills from up wind. Once the spill is contained, the PAA and hydrogen peroxide should be allowed to decompose before being collected and disposed of in accordance with applicable local, state and federal regulations. If required, report spills to the appropriate state or federal authorities.



- **Fires** - Fires involving PAA should be extinguished with water. Containers of PAA involved in a fire should be cooled with water sprays. If the container begins to discolor or vent violently, emergency responders should evacuate the area. If heated or decomposed, higher concentration PAA solutions may give off toxic and/or flammable vapor.

For additional information concerning PAA emergency response procedures, please consult the [Material Safety Data Sheet](#).

Health Information

Exposures to PAA can produce the following adverse health affects:

- **Contact** – Skin exposures can cause symptoms ranging from minor skin irritation to painful redness and swelling. Eye exposure to PAA solutions may result in severe eye irritation, burns, irreversible eye damage or even blindness.
- **Inhalation** – The inhalation of PAA can irritate mucous membranes of the nose and throat causing symptoms ranging from nose and throat irritation to coughing and difficulty breathing. Repeated or prolonged exposures may cause sore throat, nosebleeds, chronic bronchitis, chemical pneumonitis (inflammation of the lungs) and edema (fluid in the lungs).
- **Ingestion** –Ingestion of PAA may cause bloating, belching, irritation of the upper digestive and respiratory tracts, nausea, vomiting, difficulty breathing, excessive fluid in the mouth and nose, and risk of suffocation. Ingestion may also cause severe burns to the mouth and throat, perforations to the esophagus and stomach, chemical pneumonitis and edema. The ingestion of concentrated solutions of PAA can be fatal.
- **Other Effects** – Animal testing with PAA has shown no evidence that it is a carcinogen. Some testing has indicated that PAA may have mutagenic effects.

For more information on health effects and routes of exposure, or for information concerning proper first aid measures, please consult the [Material Safety Data Sheet](#).

Environmental Information

Small amounts of PAA may be released to the aquatic environment from sites that manufacture it or use it. PAA may also be released to the environment through spills and other unintentional releases. PAA can be toxic to fish and microorganisms, but it is not known to bioaccumulate or persist in the environment. PAA degrades into oxygen, water and acetic acid, which is relatively non-toxic at low concentrations. For more



ecological and environmental information concerning this product, please consult the [Material Safety Data Sheet](#).

Physical Hazard Information

PAA is an oxidizer and will support combustion. PAA solutions can cause fires when left in contact with combustible materials such as paper, wood or cloth. Mixing PAA solutions with certain organics should be done with care, as they may form explosive mixtures. Oxygen enrichment from the decomposition of PAA solutions in vessels containing certain volatile organics can also form explosive mixtures in the headspace of the vessel. If heated or decomposed, higher concentration PAA solutions may give off toxic and/or flammable vapor.

Exposure of PAA solutions to impurities such as strong acids, bases and transition metals (copper, manganese, chrome, etc.) can cause decomposition. PAA decomposition will result in the liberation of heat and gases which can result in a rapid pressure buildup. Systems used to store or transport PAA solutions must be properly vented and must have enough emergency venting capacity to allow the contents of the system to withstand a catastrophic decomposition event.

For more information concerning the physical hazards of this product, please consult the [Material Safety Data Sheet](#). For information concerning the proper design of hydrogen peroxide and PAA systems, please contact Solvay Chemicals, Inc.

Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use and/or disposal of this chemical. These regulations can vary by city, state, country or geographic region. Information may be found by consulting the relevant [Material Safety Data Sheet](#) specific to your country or region.



Additional Information

- Solvay America, Inc. www.solvaynorthamerica.com
- Solvay Chemicals, Inc. www.solvaychemicals.us
- Solvay Chemicals Inc. Material Safety Data Sheets
www.solvaychemicals.us/EN/Literature/LiteratureDocuments.aspx
- Contact Solvay Chemicals, Inc. solvaychemicals.us@solvay.com
- NJ Department of Health & Senior Services Hazardous Substance Fact Sheets
<http://web.doh.state.nj.us/rtkhsfs/factsheets.aspx>
- This summary was prepared in January, 2012

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