

PROXITANE® Peroxyacetic Acid Safety and Handling Technical Data Sheet

While dedicated to the North American peroxygens market, Solvay Chemicals, Inc. brings resources to this continent from far beyond its borders. We are a member of the global Solvay Group of companies, sharing a history of more than 140 years experience in the worldwide chemicals industry, and more than a century of peroxygens production.

Today committed professionals engage in peroxygen research and development at laboratories of Solvay companies around the world. Our customers benefit from this international cooperation through new and advanced technologies.

As the leading producer of hydrogen peroxide and persalts in the United States, we operate plants in Deer Park, Texas and Longview, Washington to serve our customers from strategically placed distribution centers.

Solvay Chemicals looks forward to continuing leadership by providing excellent products, services and technologies to the world's peroxygen markets.

Introduction

This manual presents basic data on the safety and handling of commercial PROXITANE peroxyacetic acid (CH_3COOOH) solutions in concentrations of 5 to 15% by weight, based upon knowledge gained through our production and supply of these products through the years. Please consult product Material Safety Data Sheets (MSDS sheets) for additional information.

In the area of product safety and application, Solvay Chemicals provides technical services such as:

- In-field assistance in determining the optimum system design for unloading, handling and storing PROXITANE product, in drums or in bulk.
- Consultation on selection and installation of equipment and necessary safety equipment.
- Development and presentation of safety training programs for proper handling and use of PROXITANE product by plant personnel.
- On-site supervision of initial deliveries of bulk shipments of PROXITANE product.
- Access to highly qualified technical specialists to consult on applications in areas such as food processing, human and animal health care, horticulture, effluent treatment, and chemical synthesis.
- In-plant technical assistance for operations start-up and/or troubleshooting of processes involving PROXITANE peroxyacetic acid.



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Safety is one of Solvay Chemicals' primary concerns. PROXITANE peroxyacetic acid solutions are powerful oxidants, and improper handling or use of these products can create potential hazards.

For example:

- PROXITANE peroxyacetic acid in contact with eyes can cause severe injury or even result in blindness.
- Commercial strengths of PROXITANE peroxyacetic acid will irritate and possibly cause chemical burns on the skin.
- Ingestion of PROXITANE peroxyacetic acid can cause severe injury and may be fatal.
- Decomposition of PROXITANE peroxyacetic acid generates heat and gas which can result in rapid pressure buildup leading to pressure bursts of inadequately vented containers.
- While generally not flammable alone, PROXITANE solutions can decompose and generate sufficient heat and oxygen to initiate combustion of flammable materials.
- Oxygen enrichment of hydrocarbon vapors resulting from the decomposition of PROXITANE peroxyacetic acid can result in vapor phase explosions.

Protective equipment

The following equipment will provide adequate protection in many industrial settings:

- Proper chemical-splash goggles.
- Chemical resistant butyl rubber gloves.
- If there is a risk of splashing, chemical protective clothing (hard hat with a brim, face shield, chemical resistant acid suit and boots) should be worn.
- If excessive airborne concentrations are present, a NIOSH-approved full-face supplied air respirator is recommended.

Health hazards/first aid

Specific information pertaining to health hazards and safety may be found in Solvay Chemicals Material Safety Data Sheets (MSDS) for PROXITANE peroxyacetic acid solutions.

General considerations of personnel safety must include prompt first aid in case of localized body contact or exposure.

Eye contact. PROXITANE peroxyacetic acid splashed in the eyes can cause severe damage and possibly result in blindness. This damaging action is sometimes delayed, so that ulcerations might not develop in the eyes for several days. Exposure to PROXITANE vapor can also sting and make the eyes water. Any contact of PROXITANE product with the eyes calls for immediate action! Irrigate the eyes with clean water for at least 15 minutes. Make certain that the washing action reaches all eye tissues and lid surfaces. Get medical attention at once!

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Skin/clothing contact. PROXITANE peroxyacetic acid splashed on the skin can cause irritation and blisters.

Exposure to PROXITANE product requires immediate flushing of the skin with water. Drench contaminated clothing immediately with water and remove from the body. Prolonged exposure can result in chemical burns requiring medical attention.

Inhalation. Breathing mist or vapor from PROXITANE product can irritate and inflame the mucous membranes of the nose and throat. Personnel affected by PROXITANE vapors should be moved into fresh air immediately.

OSHA regulations state that an 8-hour timeweighted average of 1 ppm is the maximum permissible level of exposure to hydrogen peroxide vapor. Consult the MSDS for additional exposure level information. NIOSH-approved protective respiratory equipment should be used during cleanup of spills in areas not adequately ventilated. Appropriate permitting procedures must be followed.

Ingestion. If PROXITANE peroxyacetic acid is swallowed, the victim should rinse his/her mouth and drink large quantities of water immediately. Rapid evolution of gases can cause gastric distension and internal damage. Do not attempt to induce vomiting. If the victim is unconscious, loosen clothing, keep warm and administer pulmonary resuscitation or oxygen if necessary. Immediate medical attention is required in either case!

Work area

Operations involving PROXITANE peroxyacetic acid should be carried out in a well-ventilated location, with local ventilation provided where necessary. All areas must be clean and free from combustible materials. There should be no sources of heat which could contact the product. There should be no eating, drinking, or smoking in these areas.

Areas should be chosen so that in the event of leakage of PROXITANE product, the risk of contact with incompatible construction materials or the environment is minimized. Where necessary, secondary protection measures should be considered, such as dikes for bulk storage installations, and dedicated, isolated storage areas with containment curbs for drums or tote tanks (IBCs). Splash shields and catch trays (for drums or pallets) may also be appropriate.

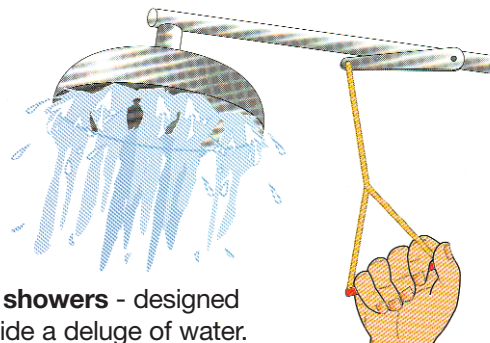
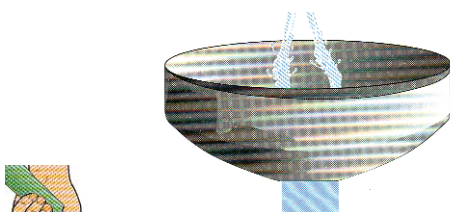
Other chemicals should be segregated.

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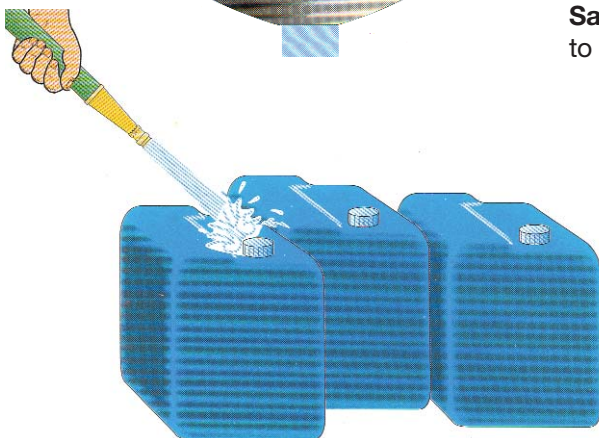
Safety facilities

All plants or laboratories handling PROXITANE peroxyacetic acid should have the basic safety facilities illustrated below. These include:

Eyewash stations - used for the gentle flow of potable-grade water.



Safety showers - designed to provide a deluge of water.



Hoses and water source - used to provide high volumes, low pressure flushing of **PAA spills**.

All water supplies should have freeze protection if warranted by climate conditions. Eyewash stations and safety showers should be tested periodically.

Working practices

Workers should be trained on hazards and handling precautions prior to working with PROXITANE products. Solvay Chemicals can assist in providing information for training new PROXITANE product users.

Upon receipt, the condition of all drums/packages should be checked for any damage which may have occurred during transport or for signs of decomposition (hot and/or bulging containers). Any drums or packages which show signs of damage or decomposition should be segregated and Solvay Chemicals should be notified immediately.

PROXITANE peroxyacetic acid should be handled with care so that no product is spilled and no contamination can enter the product. The product should be kept in its original container with its vented cap firmly closed. Because of the vent, it is important to keep the package in an upright position to avoid leakage. Transfer from the package and subsequent handling must involve only clean, passivated and dedicated equipment constructed of suitable materials. To avoid confusion it is advisable to clearly label peroxyacetic acid equipment.

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Containers must prevent entry of contamination and allow escape of gases from decomposition.

Unused product must never be returned to its original container!

Handling, transfer and other operations must be carried out only according to approved methods or procedures. Improvisation or unconsidered changes can be a source of serious danger. After use, all portable equipment and containers should be rinsed with good quality water.

In the event of any leakage or spill, however small, prompt action is important. In particular, spills should not be allowed to dry, especially combustible materials (e.g., paper, clothing, wood, oil), as this could lead to decomposition or a possible fire.

Safety poster

The Solvay Chemicals safety poster pictured here is available upon request and illustrates the basic safety rules to follow when handling PROXITANE peroxyacetic acid. Display this poster prominently to remind personnel of the proper safety precautions and emergency procedures. Contact our Customer Account Representative.

Proxitane® Peroxyacetic Acid (PAA)

Solution containing up to 17% wt/wt peroxyacetic acid (PAA) and 25% wt/wt hydrogen peroxide (H₂O₂)

DANGER!

Strong Odorizer • Causes severe eye and skin burns • May be fatal if swallowed
May cause severe irritation to respiratory tract • Contact with other material may cause fire







Precautionary Measures

- Wear chemical goggles and chemical resistant gloves as a minimum. Depending on risk of splashing, wear face shield, plastic apron and boots.
- Have an eye wash and safety shower nearby.
- Use respiratory protection when excessive airborne concentrations cannot be controlled with engineering controls.
- Always have an adequate supply of water readily available.
- Keep storage area free of combustible materials. Use it for peroxyacetic acid storage only.

- In case of contact with combustible materials, dilute with water. Do not allow product to dry on combustibles.
- Store in original container in a cool place. Keep containers upright. Ensure vents remain workable.
- Prevent all contamination of peroxyacetic acid. Do not return unused product to original container.
- Use clean vessels and equipment of compatible materials. Empty all equipment and drain equipment after use. Wash out with water.
- Use only vessel or containers fitted with a pressure relief device in operable condition.



Consult the Material Safety Data Sheet for additional information on hazards and precautions
MSDS available at www.solvaychemicals.us

Emergencies

 <p>Contact with skin:</p> <ul style="list-style-type: none"> • Wash affected skin with plenty of water. • Remove and wash clothes pulled during immediately. • IMMEDIATELY SEEK MEDICAL ATTENTION. 	 <p>Contact with eyes:</p> <ul style="list-style-type: none"> • Immediately flush with large amounts of water for at least 15 minutes. • IMMEDIATELY SEEK MEDICAL ATTENTION.
 <p>Ingestion:</p> <ul style="list-style-type: none"> • If subject is conscious, rinse mouth with water. Do not induce vomiting. • If subject is unconscious, administer oxygen and, if needed, pulmonary resuscitation. • IMMEDIATELY SEEK MEDICAL ATTENTION. 	 <p>Inhalation:</p> <ul style="list-style-type: none"> • Remove victim from contaminated area. • If peroxyacetic acid vapors are still present, rescuers should wear suitable respiratory protection. • IMMEDIATELY SEEK MEDICAL ATTENTION.
 <p>Spill:</p> <ul style="list-style-type: none"> • Water is preferred media for extinguishing. • Keep adjacent containers cool with water spray. • Use a fire suit equipped with self-contained breathing apparatus. 	 <p>Leak or Spill:</p> <ul style="list-style-type: none"> • Dilute spilled material with sand or earth. • Dilute with large quantities of water. • Dispose in accordance with local state and federal regulations. • Do not absorb in sawdust or other absorbent materials. • Do not attempt to recover spilled peroxyacetic acid solutions.

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For detailed information contact: Solvay Chemicals, Inc. / 3333 Richmond Avenue / Houston, TX 77066 / 1-800-SOLVAY-C / 24-hour Emergency No. 1-800-426-0000

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Properties of PROXITANE peroxyacetic acid solutions

Chemical properties. PROXITANE peroxyacetic acid solutions are equilibrium mixtures of peroxyacetic acid, hydrogen peroxide, acetic acid and water. All four components are always present:

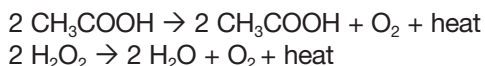


Peroxyacetic acid solutions are highly reactive oxidizing chemicals. The chemistry of their reactions is complex. Special care should therefore be taken to avoid all mixing prior to having properly ascertained the potential safety hazards. It is particularly important that mixtures of PROXITANE products and organics be treated with extreme caution! Consult Solvay Chemicals for a more detailed review of potential safety hazards before beginning any work with such mixtures.

Physical properties. PROXITANE solutions are more dense than water, but are miscible with water in all proportions. While they may look like water, they typically have a characteristic vinegar-like odor (the intensity of which depends on the chemical composition of the product).

The 5% and 12% solutions are non-flammable, but the 15% solution can give rise, at higher temperatures or via decomposition, to vapors which can burn. PROXITANE peroxyacetic acid can also cause combustion of many organic materials such as cloth, paper, wood, etc. This combustion may be spontaneous or may occur after a period of delay in which the product concentrates by evaporation. Table One presents basic properties of Solvay Chemicals' standard PROXITANE solutions.

Stability and decomposition. The naturally occurring decomposition of PROXITANE peroxyacetic acid to form oxygen, acetic acid and water, with the evolution of heat, is expressed by the equations:



Since commercial grades of PROXITANE peroxyacetic acid solutions are quite stable, the heat of this very slow, naturally occurring decomposition and the evolved oxygen are dissipated readily to the surroundings and the PROXITANE product remains at ambient temperature under normal conditions.

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Table One: Properties of PROXITANE peroxyacetic acid solutions

		PROXITANE 5	PROXITANE 12	PROXITANE 15
Peroxyacetic acid	wt%	5	12	15
Density @ 20°C	g/ml	1.10	1.11	1.12
	lb/gal	9.18	9.26	9.35
Viscosity @ 20°C	cP	2	2	2
Apparent pH	(25°C)	0.70	0.56	0.40
Self-Accelerating				
Decomposition	°C	≥ 55	≥ 55	≥ 55
Temperature (SADT)	°F	≥131	≥131	≥131
Freezing point	°C	<-20	<-20	<-20
	°F	<- 4	<- 4	<- 4
Boiling point		N/A (product decomposes)		
Flash point	°C	N/A	N/A	116
	°F	N/A	N/A	241

N/A means “not applicable”

Several factors can increase the normally slow decomposition rate of PROXITANE peroxyacetic acid, however. The consequences of a rate increase can range from a deterioration of product concentration over a period of days or weeks to, at worst, a runaway reaction generating large amounts of heat and gas (oxygen and steam). The worst case scenario can lead to serious safety incidents, including pressure bursts of vessel or pipes, fires due to spilled product, and personnel injuries. The primary factors which must be controlled to prevent an increased rate of PROXITANE peroxyacetic acid decomposition are temperature, contamination and pH.

The temperature of PROXITANE peroxyacetic acid is an important variable, since the decomposition rate is roughly doubled by every 10°C increase. Given the heat generated by decomposition, a self-accelerating reaction can evolve if heat transfer to the surroundings is slower than the rate of heat generation. PROXITANE product storage facilities and piping should be located well away from heat sources such as boilers, steam lines, etc. Storage of PROXITANE peroxyacetic acid in insulated vessels should be avoided.

Contamination of PROXITANE peroxyacetic acid solutions is a second major cause of accelerated decomposition, since many common materials act as catalysts for the decomposition reaction. Some contaminants (such as heavy metals) can create rapid decomposition of PROXITANE products if present even in very low concentrations.

Homogeneous decomposition is prompted by dissolved contaminants such as alkalis, strong acids and salts of transition metals (nickel, chromium, copper, iron, etc.). Homogeneous decomposition is most frequently started when another chemical is erroneously put into a PROXITANE product vessel (or vice versa) or by process fluid back flow through a poorly-designed or malfunctioning product feed system. Never return product to the original container!

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Heterogeneous decomposition of PROXITANE peroxyacetic acid is localized on the surface of solid catalytic contaminants, usually metals. Contact of commercial strength PROXITANE peroxyacetic acid solutions with improper materials of construction (copper, brass, zinc, mild steel, etc.) is a primary cause of heterogeneous decomposition. The accidental introduction of debris, such as dirt, tools, flashlights and so forth, into storage vessels or containers, is an all-too-frequent cause of heterogeneous decomposition. PROXITANE product containers should always be stored closed.

Commercial grades of PROXITANE peroxyacetic acid solutions contain stabilizers which chelate small amounts of impurities, providing protection against the effects of minor levels of contamination. Unfortunately, stabilizers are ineffective in dealing with gross contamination by decomposition catalysts.

The inherent stability of PROXITANE peroxyacetic acid is also affected by pH. The decrease of stability at lower pH than that of the supplied product is not normally large, but at higher pHs the stability may deteriorate very rapidly. Contamination of PROXITANE products by acids and particularly alkalis must therefore be avoided.

Safety basics

Decomposition in storage containers. Contamination of a PROXITANE product storage container with catalytic materials will result in accelerated decomposition which may attain an uncontrollable state. Common causes are metallic items being accidentally dropped into the container, airborne contamination, process liquors being forced back into the container or contaminated product being returned to the container. The first indication of decomposition is that the temperature of the container will start to rise above ambient. Decomposition is normally slow in the early stages and can usually be controlled by cooling down the container by spraying the outside surface with cold water. For bulk storage vessels, this should be done from a protected position at least 30 yards from the vessel; structural firefighter's protective clothing should be worn, with positive pressure self-contained breathing apparatus (SCBA) if necessary.

Under no circumstances should the container be approached if gas emission or jetting of liquid is observed. Under these circumstances personnel could be injured by hot, decomposing peroxyacetic acid or by tank rupture.

Do not attempt to transfer or use decomposing product! Seek advice from Solvay Chemicals on proper disposal.

The container must not be used for PROXITANE product service again until it has been cleaned and repassivated and the cause of decomposition has been established and eliminated.

Spills. For small spills such as from a single drum or sample container, the PROXITANE product should be diluted with plenty of water (to <0.1 %). All surfaces, articles and clothing which have been contaminated must be similarly washed. Spills must NOT be mopped up with paper, cloth or other combustible material, and must NOT be recovered for reuse. Dispose of the material, and follow reporting requirements, in accordance with all applicable federal, state, and local regulations.

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For large spills, approach from upwind if safe to do so, and try to stem the spill and dam spilled liquid with sand or earth. Keep unnecessary people away from the area. Avoid discharge to the environment and immediately notify the appropriate federal, state, and local authorities. Dispose of the material in accordance with all applicable regulations, and subsequently decontaminate all surfaces, clothing and other articles with plenty of water. Do NOT use combustible materials to absorb or mop spills, nor seek to recover spilled PROXITANE product for reuse.

Although peroxyacetic acid solutions can be harmful to living organisms, this effect is short term due to the rapid degradation of the solutions, and no bioaccumulation occurs.

Fire fighting. PROXITANE solutions will not burn, although PROXITANE 15 solution can give rise, at higher temperatures or via decomposition, to vapors which can burn. If involved in a fire, all PROXITANE may decompose, yielding oxygen that supports combustion. Decomposition in confined spaces may result in a pressure burst.

For fire fighting, use only water--do not use other extinguishing agents. In case of fire, keep containers cool by spraying with water. Nearby containers not directly involved should be removed, if safe to do so, or alternatively cooled with water. Firefighters should keep upwind and operate at a safe distance because of the risk of possible bursting or liquid ejection. The evolution of steam or gas jetting from packages or containers is a sign that the danger may be imminent. Structural firefighter's protective clothing and positive pressure self-contained breathing apparatus (SCBA) should be worn. After the fire, the whole area must be thoroughly cooled and all equipment (including fire fighting apparatus and bunker gear) decontaminated with water.

Safety poster

The Solvay Chemicals safety poster pictured on page 5 is available upon request and illustrates the basic safety rules to follow when handling PROXITANE products. Display this poster prominently to remind personnel of the proper safety precautions and emergency procedures. Contact our Customer Account Representative for a copy.

Storage and handling

Solvay Chemicals offers engineering assistance relating to PROXITANE product systems design, and will gladly answer any questions in this area. PROXITANE product storage facilities should be located within a diked area to contain any spills that may occur. **(Never return spilled PROXITANE product to the storage vessel!)** This diked area should have a controlled drain, normally closed, to allow dilution and flushing of any spilled PROXITANE product. The drain should be kept free of any organic material which might accumulate, or of organic chemicals. In the restricted confines of the drain, the gas space above the liquid will be oxygen-enriched. Adding PROXITANE product to any organics in this drain may present a significant risk of a vapor phase explosion. Therefore, segregate the PROXITANE product and organic compound drains. A water hose, safety shower and eyewash station should be installed near the storage area.

It is important that all PROXITANE product storage and handling equipment be dedicated to PROXITANE product service, and be constructed of proper materials of construction. PROXITANE product can react violently with a number of materials, so it should be segregated from other chemicals or organic matter. The design of the PROXITANE product application system

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should have provisions to prevent contamination with other process chemicals. PROXITANE product storage tanks and inlet hose connections should be clearly labeled to prevent putting either the wrong chemical into PROXITANE product storage tanks, or PROXITANE product into the wrong storage tank. The storage area for bulk quantities of PROXITANE product should have sufficient access for tank truck deliveries.

Product storage and handling facilities must comply with all local and national codes, and should also comply with the guidelines discussed below.

Drums

Drums should be stored closed and upright. The vents on the drums must not be obstructed. The storage arrangement should allow easy detection and removal of leaking, swollen or damaged packages.

Drums may be moved by hand or lift trucks. They should never be rolled or laid on their sides. Ideally, drums should be stored on a solid surface made of continuous concrete slightly sloped towards controlled drainage, and surrounded by a suitable dike, about 4 inches high, with a small drive-on ramp to the threshold. The storage area should be unheated and adequate ventilation should be provided.

Drums may be stored outside but, in hot sunny climates, may require protection from direct sunlight. Tarpaulins made from natural fibers such as cotton canvas should not be used because of the risk of combustion on contact with PROXITANE product. The storage area must be kept clean and free of combustible materials and incompatible chemicals.

The storage area should be marked with the appropriate identification and hazard warning signs. A safety shower and eyewash should be provided for treatment of personnel who accidentally come into bodily contact with PROXITANE product. A water hose should be available for flushing away spills and leaks to a safe place. Pipelines (especially those carrying chemicals) should not pass through the storage area.

Disposal

Empty drums should be washed out with clean water and recycled or disposed of in conformity with all federal, state and local regulations. No drum should ever be used for the storage of other materials. The rinsate should be treated in compliance with all federal, state and local regulations.

Tote tanks (IBCs)

Since tote tanks usually arrive at a customer's site on a truck or trailer, suitable lifting equipment such as a fork lift truck is needed.

A diked, concrete area with a controlled drain is recommended. The storage area, preferably outdoors, must generally conform to good standards of accessibility and cleanliness.

In hot sunny climates, IBCs may require protection from direct sunlight with the same restrictions as those for drums. Particular care should be taken to ensure that the containers cannot be damaged by passing vehicles. The storage area should be secure, appropriately marked and segregated

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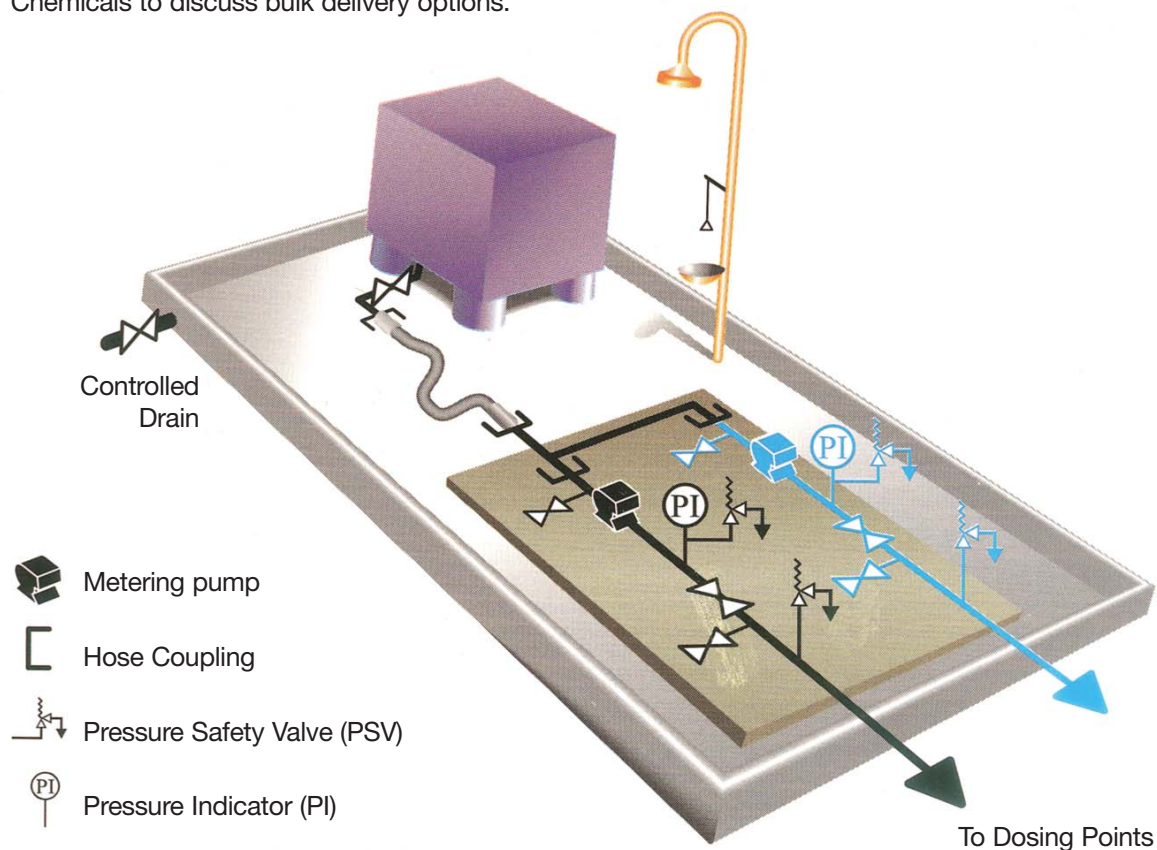
from combustible materials and incompatible chemicals. A water hose reel or hydrant should be available to wash away any spills and a safety shower with eyewash should be available in the immediate vicinity for use by personnel who might accidentally come into bodily contact with PROXITANE product.

Transportable tanks should always be stored upright and closed/capped. They should also be kept closed when they are empty. These tanks should never be washed out or used for the storage of other materials.

If there are any doubts about procedures with tote tanks, consult SolvayChemicals.

Bulk

For large consumers of PROXITANE product, bulk storage may be a practical option. Such factors as statutory requirements, tank location, materials of construction, decomposition venting and passivation of equipment to receive the product are important considerations. Hence, the layout, design and installation of a bulk storage area generally requires expert advice. While some guidelines are discussed below, we strongly recommend that customers planning a bulk storage unit consult Solvay Chemicals. Prior to the first delivery of PROXITANE peroxyacetic acid, the bulk storage installation must be inspected and approved by Solvay Chemicals. Please contact Solvay Chemicals to discuss bulk delivery options.



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General design and process considerations

PROXITANE peroxyacetic acid is a potentially dangerous solution when handled improperly. When designing any process utilizing PROXITANE product, the following guidelines should be taken into consideration:

- Use proper materials of construction.
- Design systems to minimize personnel exposure.
- Avoid long piping runs.
- Minimize the number of valves and fittings.
- Provide a pressure-relief device in any line where solutions containing PROXITANE product can be trapped, such as between valves. This is required to ensure harmless release of any pressure buildup due to PROXITANE product decomposition in the isolated section of pipe.
- Provide a low flow trip, pressure relief, or recirculation lines to avoid pumping against a closed valve or closed system.
- Whenever possible, use drop feed into the process to eliminate the possibility of reagent siphoning.
- Utilize proper venting and/or an inert gas blanket in vessels where oxygen enrichment of head space could occur.

Materials of construction. The primary consideration in selecting materials of construction for PROXITANE product storage and handling equipment is to utilize only those materials compatible with the product. Table Two lists materials to avoid as well as the preferred metals and plastics for PROXITANE product handling equipment.

It is extremely important to note that all of the contact surfaces should be non-porous, smooth, and as free of surface impurities as possible to prevent decomposition of the PROXITANE product. Grind any welds which will be in contact with the product to remove weld spatter and to smooth out scratches. Passivation is required.

Any questions concerning suitable materials of construction for PROXITANE product service should be referred to Solvay Chemicals' technical specialists.

Storage tanks. It is important to note that all PROXITANE product storage containers (e.g., sample packages, drums, tanks, tank trucks or railcars) must be atmospheric vessels. Each should be equipped with a properly designed continuous vent to release the small amounts of oxygen normally liberated from PROXITANE product and to allow displacement air to enter free of entrained matter. An additional safety feature of PROXITANE solution storage tanks involves the use of free-lifting manway covers. These serve as inspection ports as well as emergency pressure-relief ports in the event of rapid decomposition of the PROXITANE product in the tank.

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Table Two: Materials of Construction

Recommended materials

- Aluminum - 99.5% minimum purity alloys with the following Aluminum Association designations: 1060, 1260, 5254, 5652, or 6063
- Stainless steel types 304, 304L, 316, 316L

Other acceptable materials

- Chemical glass
- Chemical ceramic
- Polytetrafluoroethylene (PTFE)
- Polyvinylidene Fluoride (PVDF)

Typical unacceptable materials

- Brass
- Copper
- Nickel
- Iron and mild steel
- Bronze
- Synthetic rubbers
- Zinc

Pipes, valves and fittings. Piping should be of butt-welded and flanged construction. Under no circumstances should socket welds be used in PROXITANE product systems.

Threaded systems are not recommended, as threaded aluminum and stainless steel piping may not maintain liquid-tight connections. However, threaded connections may be used in areas where there is little PROXITANE product through-put (e.g., pressure safety valve connections). Piping should be routed outdoors whenever possible to minimize the hazards which could be created by a leak.

Ball valves are recommended for PROXITANE product service. However, these valves must be vented! The valves can be commercially-available vented valves, or conventional ball valves can be modified by drilling a small hole (1/8") in one side of the ball so that, in the "closed" position, the cavity vents upstream into the liquid as shown in Figure One.

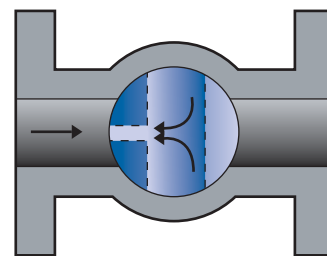


Figure One

Pumps. Pumps for PROXITANE product service are constructed of stainless steel or polytetrafluoroethylene (PTFE). Any of the following types of pumps are suitable:

- Single diaphragm metering pumps with compatible hydraulic fluids.
- Double diaphragm metering pumps with compatible hydraulic fluids.
- Centrifugal pumps.
- Gear pumps.

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Solvay Chemicals does not recommend the use of packed glands, as they require lubricants which may not be compatible with PROXITANE peroxyacetic acid. Only sealless pumps and pumps with single mechanical seals with glass-filled PTFE on ceramic faces should be used. Double mechanical seals should not be used with PROXITANE product since they require barrier fluids which are often incompatible with the product. In addition, they provide a space which can trap PROXITANE product.

Passivation. Before metal equipment is placed into PROXITANE service, it must undergo pretreatment to deactivate the wetted surfaces. This involves thorough cleaning, pickling, passivating and testing of the metal surfaces which will come in contact with PROXITANE.

Prior to pickling and passivating the equipment, the interior metal surfaces must be thoroughly cleaned to remove oil, grease and dirt. The pickling process uses a chemical solution to remove contaminants adhering to or imbedded in the metal surfaces. The passivation process forms a protective oxide coating on the metal surface.

Following the passivation and thorough rinsing with water, a small amount of PROXITANE solution is put into the tank or piping. It is then sampled and analyzed to determine if the process has been successfully completed.

A properly passivated PROXITANE product system can serve for many years, provided no internal surface damage or contamination has occurred during continuous PROXITANE product service.

However, it is recommended that the passivated surfaces of the tank be periodically inspected to be certain of their integrity.

This is only a generalized description of the passivation process. It is a procedure that should only be undertaken by trained personnel. Contact Solvay Chemicals for more detailed information concerning the proper passivation equipment.

Filtration. Solvay Chemicals strongly discourages the use of filters unless absolutely necessary, since filters can concentrate impurities and become a focal point for PROXITANE product decomposition. Please contact Solvay Chemicals to discuss filtration options.

Shipping PROXITANE Product

All PROXITANE peroxyacetic acid solutions containing less than 6% peroxyacetic acid by weight are categorized as an oxidizer by the U.S. Department of Transportation (DOT).

PROXITANE products containing greater than 6% but less than 17% by weight are categorized as an organic peroxide type F liquid by the DOT. Accordingly, DOT regulations concerning loading, unloading, placarding, marking and labeling must be followed (see Table Three).

PROXITANE® Peroxyacetic Acid Safety and Handling Technical Data Sheet

Drums

Solvay Chemicals can supply PROXITANE product in drums constructed of high density polyethylene, in a variety of sizes from 5 to 55 gallons. When shipping drums of PROXITANE product, segregate them from other chemicals. Drums should be shipped closed and upright. Do not block the drum's continuous vent, which prevents internal pressure buildup. Drums should not be allowed to roll or tip, which may cause product to leak out of the continuous vent.

Tote tanks (IBCs)

Solvay Chemicals can supply PROXITANE product in dedicated, vented stainless steel tote tanks (IBCs) with a typical capacity of 300 gallons.

Table Three: PROXITANE material classification

Peroxyacetic Acid, CAS Number 79-21-0
Hydrogen Peroxide, CAS Number 7722-84-1

Peroxyacetic Acid		
Concentration, wt%	≤ 6%*	6 to 17%
UN Number	3149	3109
Hazard Class	5.1	5.2
Packing Group	II	II
Labels	Oxidizer, Corrosive	Organic Peroxide, Corrosive
DOT Proper Shipping Name	Hydrogen peroxide and peroxyacetic acids mixtures, stabilized	Organic peroxide type F, liquid

*CA - 9501001

Summary

The following general rules for handling PROXITANE peroxyacetic acid will help avoid hazards that may be associated with this product:

- Wear the proper personal protective equipment when handling PROXITANE product.
- Avoid contamination of PROXITANE product from any source.
- Store PROXITANE product in vented containers only.
- Maintain dedicated PROXITANE product equipment.
- Keep PROXITANE product containers and equipment clean.
- Display the Solvay Chemicals safety poster prominently as a reminder of emergency procedures.
- Always use large quantities of water to deal with PROXITANE product spills or personal contact.
- Always understand the chemistry of the application.

PROXITANE[®] Peroxyacetic Acid Safety and Handling Technical Data Sheet

For 24-hour emergency telephone numbers:

Customer Emergencies: 1-800-424-9300 (CHEMTREC[®])

Transportation Emergencies (USA): 1-800-424-9300 (CHEMTREC[®])

Transportation Emergencies (INTERNATIONAL/MARITIME): 1-703-527-3887 (CHEMTREC[®])

Transportation Emergencies (CANADA): 1-613-996-6666 (CANUTEC)

Transportation Emergencies (MEXICO-SETIQ): 01-800-00-214-00 (MEX. REPUBLIC)
525-559-1588 (Mexico City and metro area)

For further information on hydrogen peroxide, call:

1-800-SOLVAY-C (1-800-765-8292) or 713/525-6500

1.800.424.9300 for Transportation Emergencies (from within the U.S.) or 703-527-3887 (from outside the U.S.) for Transportation Emergencies in the U.S.

Solvay Chemicals is dedicated to customer satisfaction

Quality. Solvay Chemicals strives to bring you the best in products, service and technology. Exceeding, not just meeting, your expectations is the basis for our pursuit of continual improvement. To demonstrate our commitment, Solvay Chemicals' Quality Management System is registered to the ISO 9001:2000 International Quality Management System Standard.

Solvay Chemicals will continue to pursue excellence in everything we do. We dedicate ourselves to this effort because we know that our success depends on satisfying you.

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