

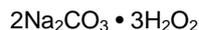
SODIUM CARBONATE PEROXYHYDRATE SODIUM PERCARBONATE SAFETY & HANDLING INFORMATION

INTRODUCTION

Solvay Chemicals, Inc. markets sodium carbonate peroxyhydrate (commonly referred to as sodium percarbonate) under the trade names FB[®] Sodium Percarbonate and Oxyper[®]S. These products are designed for use in a variety of applications ranging from hard surface cleaners to all fabric bleaches and laundry detergents. This document is designed to give an overview of the safe handling of packaged sodium percarbonate and is complementary to other information available from Solvay Chemicals such as Safety Data Sheets and Technical Data Sheets, which can be found at www.solvaychemicals.us.

THE PRODUCT

Sodium percarbonate (PCS) is a white, free-flowing granular powder. It is odorless and readily soluble in water. PCS has the following chemical formula:



The product is an addition salt of hydrogen peroxide and sodium carbonate and provides a solid source of hydrogen peroxide for oxidation reactions. This property also allows PCS to contribute to the bleaching process in formulated detergents or to be used as an ingredient in dry bleach products.

PRODUCT HAZARDS

There are three main types of hazards associated with PCS.

Decomposition

PCS naturally decomposes very slowly to form sodium carbonate, water, oxygen and heat. The decomposition proceeds according to the reaction below:



When handled properly, PCS is very stable and can be stored for several months without a significant loss in available oxygen content. However, if the rate of heat generation exceeds the rate of heat lost to the surrounding environment, PCS will self-heat. In instances where the temperature exceeds 50°C, a self-accelerating decomposition can occur with the following consequences:

Rise in temperature to a maximum of 110°C (230°F);

release of oxygen and steam (600 m³ of gas/metric ton of PCS);

pressure buildup, which can result in a pressure burst if the material is confined in an unvented container;

fire, if in the presence of combustible materials.

It is important to avoid destabilizing PCS by contaminating with materials which can initiate or accelerate decomposition. These include the following:

water

transition metals (Fe, Mn, Ni, Cr, etc.) and their salts

organic materials

acids
bases
reducing agents
dirt.

It is also important to store PCS away from any potential heat source.

Fire

PCS is non-flammable; however, when it decomposes it can support and even initiate combustion of other substances by releasing oxygen and heat. For this reason, care must be taken to keep PCS away from any combustible materials including paper, rags, wood and other organic materials. In the event of a fire or in the presence of a heat source, PCS will decompose and evolve oxygen. The evolved oxygen can significantly increase the burning rate, thus escalating the fire.

Application hazards

The improper incorporation of PCS within formulations with a variety of other ingredients can lead to an exothermic reaction. The nature and rate of such a reaction depend on:
the nature and quantity of ingredients;
the sequence of addition during manufacture;
the methods used to handle and manage (e.g. storage, disposal) the formulation
or any intermediates that may contain PCS.

For these reasons, a hazard and risk assessment should be performed before starting up or making changes to any manufacturing process that employs PCS. Solvay Chemicals can provide assistance with such an assessment if requested.

MATERIALS OF CONSTRUCTION

The recommended materials for constructing PCS handling and storage equipment are:

Stainless-steel grades 304L or 316L;

Aluminum-grade BS3535 or DIN 1725 (for dry duty only);

Recommended gasket material is PTFE.

Polypropylene, polyethylene and several other plastics are suitable materials of construction for PCS packaging.

Mild steel is not recommended for service in any equipment that will come into contact with PCS.

TRANSPORT GUIDELINES

PCS is classified as an oxidizer (DOT/UN division 5.1) for transport purposes. The following recommendations should be followed when transporting PCS in trucks or containers:

Protect from exposure to weather or moisture;

Do not transport together with incompatible materials;

Space packages and/or containers to allow airflow between them;

Do not stow containers near heat sources (e.g. steam pipes);

If wooden pallets are used, use only dried pallets (moisture max. 20%).

WAREHOUSING AND STORAGE

For warehouse storage the following recommendations should be observed:

Store in a dry, clean place;

Protect from external heat sources, direct sunlight and moisture;

Keep away from all incompatible materials including organic materials, water, acids, bases, reducing agents, transition metals or their salts and flammable substances;

Respect good housekeeping practices;

Install eyewash stations and safety showers in areas where PCS is stored;

Maintain a minimum of one foot of spacing between pallets so that air can circulate between them;



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Safety & Handling

Technical Data Sheet

Always use "first in, first out" inventory control;
Do not stack pallets of 50-lb. or 25-kg. bags more than one high;
Avoid stacking bulk bags more than 2 high.

Empty packages should be treated with the same respect as full packages since product can still be present. The following recommendations should be followed when handling empty PCS packages:

Empty packages as completely as possible;
Place empty packages in a dedicated, clean and dry container;
Do not reuse empty packages for any purpose;
Dispose of empty packages in accordance with all federal, state and local regulations.

In general, good housekeeping must be maintained at all times. Any spills should be promptly collected and put into a clean, vented container. Do not return spilled product to the original container or put into any process.

EMERGENCY SITUATIONS

Solvay Chemicals Emergency Telephone Numbers:

For any US transport or customer emergencies call CHEMTREC[®], 800-424-9300
Canadian transport emergencies call CANUTEC, 613-996-6666
Mexican transport emergencies call SETIQ, 01-800-00-214-00

Decomposition

Decomposing PCS can be hard to detect until external signs such as the emission of steam, a high surface temperature (above 40°C) or a ballooning package become apparent. If product is decomposing, move it to a safe location outdoors isolated away from personnel and incompatible materials. If it is not possible to safely remove a decomposing package or containers; adjacent packages should be cleared away and the decomposition left to run its course.

Fires

PCS is non-combustible; however, if involved in a fire, PCS can support combustion through the evolution of oxygen. If involved in a fire, water is the preferred media for extinguishing. Try not to wet any packages that are not directly involved in the fire. If possible, remove them from the immediate area. Fire fighters should wear full personal protective equipment (bunker gear) and self-contained breathing apparatus (SCBA) in the presence of fires involving PCS.

Spills

Spills should be collected and placed in a clean, dry, vented container. Ensure the container is labelled and made of a material compatible with PCS. Due to the risk of contamination, the collected material should be isolated in a safe place. Disposal of the spilled product and reporting of the spill should be done in accordance with all federal, state and local regulations.

Personal Protective Clothing

Personnel dealing with spilled or decomposing PCS should wear protective clothing, including a PVC or rubber suit, rubber gloves and boots, goggles and a full face visor.

HEALTH HAZARDS AND FIRST AID MEASURES

Eye contact: Flush with running water for 15 minutes, while keeping eyelids wide open. Consult with an ophthalmologist in all cases.

Skin contact: Wash the affected skin with soap and water. Call physician in case of persistent pain or redness.

Inhalation: Remove the victim from the dusty environment. Call physician in case of respiratory symptoms.



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Ingestion: Consult with a physician immediately in all cases. DO NOT induce vomiting. If victim is conscious, rinse mouth and give large quantities of fresh water. NEVER give anything by mouth to an unconscious person.

Before using, read Safety Data Sheet (SDS) for this chemical.

**Solvay Chemicals, Inc.
24-hour Emergency Phone Number – 800-424-9300 (CHEMTREC®)**

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