



**JSC «PERCARBONAT»**

## **SODIUM PERCARBONATE** **Requirements for safe handling**



## 1. INTRODUCTION

The present document is a safety data sheet for sodium percarbonate. This information conforms to the information in the Material Safety Data Sheet and refers to sodium percarbonate, produced by JSC "Percarbonat".

## 2. KEY INFORMATION

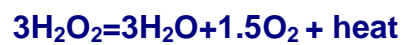
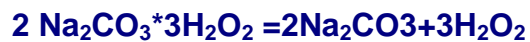
### 2.1 General information

<b>Technical name</b>	Sodium percarbonate technical stabilized Sodium percarbonate technical capsular
<b>Chemical name (as per IUPAC)</b>	Disodium percarbonate
<b>Shipping name</b>	Sodium carbonate peroxyhydrate
<b>Other synonyms</b>	Peroxsolvant of sodium carbonate, sodium hydroperoxosolvat carbonate, disodium carbonate linked together with hydrogen peroxide (2 :3)
<b>CAS number</b>	15630-89-4
<b>EC number</b>	239-707-9

Sodium percarbonate is a strong oxidant.

Sodium percarbonate is a compound of hydrogen peroxide and sodium carbonate. The synthesis is conducted with chemical stabilizers

and encapsulation is conducted with inert compositions. Chemical formula is  $\text{Na}_2\text{CO}_3 \cdot 1,5 \text{H}_2\text{O}_2$ . When dissolving in water sodium percarbonate is decomposed to hydrogen peroxide and sodium carbonate, and hydrogen peroxide is decomposed in a solution to water and oxygen with the release of heat.



On this basis sodium percarbonate is used as a bleaching agent.

## 2.2. Application

The main areas of application of sodium percarbonate are:

- Production of home oxygen-containing bleaches (chloride- and boron-free)
- Production of powder detergents (as a bleaching agent)
- Production of cleaning products with antibacterial and disinfecting effect
- Textile industry (bleach, proofing and softening of clothes, etc.)
- Cosmetic and pharmaceutical industry (production of toothpaste, deodorant compositions, lotions, shampoos, ointments, etc.)
- Chemical industry (as multifunctional oxidizing agent)
- Cleaning of hard surfaces of food, medical and other equipment
- Production of bleaches for wood substance
- Sodium percarbonate is widely used in different compositions of cleaning products and detergents

**2.3 General physical and chemical properties of sodium percarbonate:**

<b>Molecular mass</b>	314
<b>Appearance</b>	White solid
<b>Odour</b>	odorless
<b>Bulk weight, g/dm<sup>3</sup></b>	1180-1270
<b>Average particle size</b>	400-900
<b>Active oxygen, %</b>	13,0-14,2
<b>Water solubility</b>	
at 20°C	147 g/l
at 30°C	175 g/l
<b>Melting temperature</b>	140°C following decomposition
<b>pH, 1% solution</b>	10,5-10,7

**3. HAZARD STATEMENT****3.1 General hazard statement**

In case of incorrect handling sodium percarbonate poses hazard to people and environment. In case of proper handling sodium percarbonate is nontoxic and fire-flame-proof.

Sodium percarbonate is a strong oxidizing agent, stable in normal conditions and decomposes with the release of oxygen and heat; in case of influence of unfavorable factors:

<b>Decomposition initiating agents</b>	Measures to prevent effect of decomposition factors
<b>Water</b>	Keep dry in suitable containers or silos.
<b>Heat</b>	Store at the maximum temperature of 35°C, protect from heat sources, and prevent from sunrays.
<b>Contamination</b>	Prevent from intrusion of foreign contamination.
<b>Chemical substances (oxidizing agents, deoxidizers, acids, organic substances)</b>	Keep away from oxidizing agents, deoxidizers, acids, organic substances.
<b>Metals (such as copper, iron, nickel, cobalt and other heavy metals)</b>	Store in silos of stainless steel.

Decomposition of sodium percarbonate results to:

<b>Release of heat</b>	160 kal/g of heat is released The temperature may rise to 110°C. Reaction is self-simulated.
<b>Release of oxygen and water (steam)</b>	Per one ton of sodium percarbonate 600m <sup>3</sup> of oxygen and water in the form of steam is released. In enclosed space pressure is rising. In case of mixing with vapors of highly flammable substances may result to explosion.

### 3.2 Hazard of sodium percarbonate to people

In case of inappropriate handling sodium percarbonate is hazardous to people.

To prevent hazardous exposure it is necessary to:

- Read Material Safety Data Sheet for sodium percarbonate
- Use collective means of protection: input-exhaust ventilation
- Use personal protective equipment: protective goggles, respirator, rubber gloves, leather shoes, protective clothing (lavsan)

According to the degree of impact on organism sodium percarbonate is moderately hazardous substance.

MAC = 2 mg/m<sup>3</sup>.

Routes of exposure on the human body	Symptoms	First aid measures
Inhalation	Running nose, cough, throat irritation	Take the victim to fresh air, remove constraining clothes, keep him calm and warm
Skin exposure	Irritation of skin, which is manifested itself as itch and skin redness	Get off contaminated clothes, wash with water and soap
Peroral route (ingestion)	Apathy, tearing, running nose, cough, throat irritation, lack of respiratory rhythm, nausea, vomiting, diarrhea	Excessive drinking of water, activated carbon, saline purge (sodium sulfate) <i><u>Do not cause vomiting!</u></i>
Eye contact	Tearing, itchiness.	Wash immediately with

	Contact with eyes may cause corneal clouding, injection of sclera vessels	water with wide eyes
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*In all cases after the first aid consult a doctor!*

### 3.3 Hazard of sodium percarbonate to environment

Sodium percarbonate is hazardous to environment in case of violation of handling rules, as well as in case of accidental and emergency situations.

Environmental medium	Pollution	Pollution abatement	Spill response
Air	Causes dustiness of atmospheric air	Prevent from dust generation, penetration in water and soil in considerable amounts. Use tight packing. Prevent from packing damage.	Notify territorial environmental authority; take away unauthorized people from contamination area. Prevent from moisture ingress in spills. Prevent from contact of spill with oil products and flammable substances. Use personal protective equipment.
Water	Changes water pH. Produces alkaline solution.		
Soil	Changes soil alkalinity		

### **3.4 Fire and explosion risks.**

**Interaction of sodium percarbonate with flammable agents and materials may cause fire and explosion.**

#### **Fire and explosion precautions:**

- **Maintain production in appropriate conditions**
- **Follow all storage precautions relating to sodium percarbonate in order to prevent penetration of foreign substances, heat and explosion sources in products**
- **Do not store flammable materials (such as paper, wood, fabric, oily rags, etc.) with sodium percarbonate.**
- **Do not store organic substances at warehouses, where sodium percarbonate is stored**
- **Immediately clean all spilled materials**
- **Do not smoke**
- **Do not conduct hazardous works, which may be the source of flame and spark, near sodium percarbonate.**

#### **In case of fire or explosion it is necessary to:**

- **Call fire fighters**
- **Take away unauthorized people from the fire or explosion zone**
- **Use fire-extinguishing means: sand, fire blanket, foam, powder-type and carbon dioxide extinguisher from the maximum distance**
- **Do not use water for extinguishing**
- **Use personal protective equipment: complete set of protective clothes, breathing apparatus ИП-4М or its equivalent.**



#### **4. HANDLING RULES FOR SODIUM PERCARBONATE**

##### **4.1 Handling rules for sodium percarbonate when using at production site**

It should be borne in mind, that sodium percarbonate dissolves and forms alkaline suspension, which contains hydrogen peroxide. Hydrogen peroxide in case of decomposition releases oxygen, which results to pressure rising in enclosed spaces. So it is necessary to use equipment, protected against pressure rising.

**Safety precautions required in sodium percarbonate handling at production site:**

- **Use suitable equipment**
- **Use special dosing systems, excluding penetration of water and other substances, which may cause decomposition of sodium percarbonate**
- **Pneumatic transport of sodium percarbonate shall be performed with dried cold air according to GOST ГОСТ 17433-80, 0, 1, 3 and 5 class. Maximum possible temperature during pneumatic transport - 30°C, relative humidity - 50%**
- **Hose ends during materials transportation should be closed, when not in use**
- **Equipment should be clean**

**Equipment may be produced of the following materials:**

- **Polyethylene**
- **Polypropylene**
- **Ftoroplast - 4 (polytetrafluoroethylene)**
- **Polyvinyl chloride**
- **Stainless steel**
- **Seals, gaskets should be made of polytetrafluoroethylene**

**Do not use:**

- **Low carbon steel**
- **Copper or brasses**

**Measures in case of sodium percarbonate spreading:**

- **Do not put back into container**
- **Collect carefully and put into other clean container**
- **Dispose wastes according to the rules, applicable in the plant**
- **Wash off with plenty of water remaining residues**

**4.2 Rules for sodium percarbonate storage**


- **Store the product in covered warehouses at the maximum temperature 35°C**
- **Sodium percarbonate should be stored in special sealed containers (soft container of single use, polypropylene, plastic bags), packaging group III, or n silos of stainless steel, equipped with temperature sensors and designed in such a way to exclude ingress of moisture from air**
- **Air temperature at warehouse should be regularly measured and registered**
- **Warehouse should have artificial lighting**
- **Rooms for storage should have continuously operating input-exhaust ventilation**
- **Protect from penetration of contaminating agents in the product**
- **Keep away from sunrays and sources of heat**

- **Store separate from highly inflammable liquids, solvents, acids, deoxidizing agents. Exclude penetration of this substances in the product**
- **Store soft containers in one layer**
- **The space between rows should be minimum 0,5 m.**
- **Comply with the rule: «first in – first out».**
- **Guaranteed storage life for sodium percarbonate is 24 months**




#### **4.3 Transportation rules for sodium percarbonate:**

- **Sodium percarbonate is transported by all types of transport**
- **Transportation should be carried out in accordance with the transportation rules, applicable for each type of transport**
- **Transport should be covered and should ensure safety of sodium percarbonate during transportation**
- **Sodium percarbonate in soft containers should be transported with the necks up in piles, fixing them to the effect that prevent containers movements**
- **In case of transportation in bags, they should be bunched.**
- **In case of transportation by sea and river transport, do not transport on deck, transport only under deck**
- **Transport should be approved for the transportation of oxidizing agents**
- **Transport should have marking of danger**
- **Transport only in suitable tare, hermetically sealed and ensuring protection from moisture and foreign substances**
- **Keep away from direct sunrays and sources of heat during transportation**
- **Transport separate from other goods (highly inflammable liquids, solvents, acids, deoxidizing agents)**
- **Temperature of sodium percarbonate before loading should not exceed 35°C**

## General information on cargo hazard (sodium percarbonate)

UN number	3387
Hazard class	5
Hazard division	5.1 Oxidizing agent
Classification code	5113
Hazard code	50
Emergency measures code	КЭМ15Д
Emergency card	№501 – railway transportation перевозки F-A,S-Q – water transportation
Danger sign	
Marine pollutant	No

Transport marking

General	EC countries	
	DPD	CLP
<p>Danger sign: symbol (flame over the circle): black; background: yellow; figures 5.1 in the bottom corner</p> <p>«Temperature limitation» max. +35<sup>0</sup>C, «Keep dry»</p> <p>Manufacturer name, sequence number of lot and place, gross and net weight in kilograms, date of product manufacture, indication of technical conditions.</p>	<p>Danger symbol:</p> <p>Xn hazardous substance</p> <p>R-8 contact with inflammable materials can result to fire;</p> <p>R-22 hazard in case of ingestion;</p> <p>R 36/37/38 causes irritation of eyes, respiratory organs and skin;</p> <p>S-3 keep in cool place</p> <p>S-8 keep container dry S36/37/39</p> <p>Use suitable protective clothes, gloves and protective eyes/face equipment.</p> <p>Label contain the following information:</p> <p>manufacturer name, sequence number of lot and place, gross and net weight in kilograms, date of product manufacture</p>	<p><u>Hazard pictograms:</u></p> <p>GHS03: flame over circle Signal word: Warning</p>  <p>GHS05: corrosion Signal word: Warning</p>  <p>GHS07: exclamation mark Signal word: Danger</p>  <p><u>Hazard statements:</u></p> <p>H272 – May intensify fire; oxidizer. H302 – Harmful if swallowed. H318 – Causes severe eye damage</p> <p><u>Precautionary statements:</u></p> <p>P210: Keep away from heat/sparks/open flames/hot surfaces. – No smoking. P220: Keep/Store away from clothing/flammable/combustible materials. P280: Wear protective gloves/protective clothing/eye protection. P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P370+378: In case of fire: Use water for extinction. P401: Store in a dry place at temperatures not exceeding 40 °C/104 °F.</p> <p>Proposed specific concentration limits: C ≥ 25 % : Eye damage 1; H318 7.5 ≤ C &lt; 25 % :Eye irrit. 2; H319</p>