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----------ISO 9001: 2015----------

MATERIAL SAFETY DATA SHEET

1.Identification
Benzoyl peroxide, 98%
Code B 1645

2.Hazard identification
2.1Classification of the substance or mixture
Organic peroxides, Type B
Eye irritation, Category 2
Skin sensitization, Category 1
2.2GHS label elements, including precautionary statements
Pictogram(s)

Signal word	Danger
Hazard statement(s)	H241 Heating may cause a fire or explosion H319 Causes serious eye irritation H317 May cause an allergic skin reaction
Precautionary statement(s)	
Prevention	P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P234 Keep only in original packaging. P235 Keep cool. P240 Ground and bond container and receiving equipment. P280 Wear protective gloves/protective clothing/eye protection/face protection. P264 Wash ... thoroughly after handling. P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P272 Contaminated work clothing should not be allowed out of the workplace.
Response	P370+P380+P375 In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313 If eye irritation persists: Get medical advice/attention. P302+P352 IF ON SKIN: Wash with plenty of water/... P333+P313 If skin irritation or rash occurs: Get medical advice/attention. P321 Specific treatment (see ... on this label). P362+P364 Take off contaminated clothing and wash it before reuse.
Storage	P403 Store in a well-ventilated place. P410 Protect from sunlight.

P411 Store at temperatures not exceeding \u2026\u00b0C/\u2026\u00b0F.
P420 Store separately.

Disposal P501 Dispose of contents/container to ...

2.3Other hazards which do not result in classification

none

3.Composition/information on ingredients

3.1Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Benzoyl peroxide	Benzoyl peroxide	94-36-0	none	100%

4.First-aid measures

4.1Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

Fresh air, rest.

In case of skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

In case of eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

If swallowed

Rinse mouth. Give one or two glasses of water to drink. Refer for medical attention .

4.2Most important symptoms/effects, acute and delayed

CONTACT WITH EYES OR SKIN: irritates eyes. Prolonged contact may irritate skin. (USCG, 1999)

Excerpt from ERG Guide 145 [Organic Peroxides (Heat and Contamination Sensitive)]: Fire may produce irritating, corrosive and/or toxic gases. Ingestion or contact (skin, eyes) with substance may cause severe injury or burns. Runoff from fire control or dilution water may cause pollution. (ERG, 2016)

Excerpt from ERG Guide 146 [Organic Peroxides (Heat, Contamination and Friction Sensitive)]: Fire may produce irritating, corrosive and/or toxic gases. Ingestion or contact (skin, eyes) with substance may cause severe injury or burns. Runoff from fire control or dilution water may cause pollution. (ERG, 2016)

4.3Indication of immediate medical attention and special treatment needed, if necessary

For immediate first aid: Ensure that adequate decontamination has been carried out. If victim is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask as trained. Perform CPR if necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep victim quiet and maintain normal body temperature. Obtain medical attention. /Organic peroxides/

5.Fire-fighting measures

5.1Extinguishing media

Suitable extinguishing media

If material on fire or involved in fire: Burns with explosive violence. If it becomes ignited, material cannot be extinguished until it is consumed. /Benzoyl peroxide (benzoyl peroxide, dry or wet with less than 30% water)/

5.2Specific hazards arising from the chemical

Special Hazards of Combustion Products: Suffocating smoke evolved Behavior in Fire: May explode (USCG, 1999)

Excerpt from ERG Guide 145 [Organic Peroxides (Heat and Contamination Sensitive)]: May explode from heat or contamination. May ignite combustibles (wood, paper, oil, clothing, etc.). May be ignited by heat, sparks or flames. May burn rapidly with flare-burning effect. Containers may explode when heated. Runoff may create fire or explosion hazard. (ERG, 2016)

Excerpt from ERG Guide 146 [Organic Peroxides (Heat, Contamination and Friction Sensitive)]: May explode from heat, shock, friction or contamination. May ignite combustibles (wood, paper, oil, clothing, etc.). May be ignited by heat, sparks or flames. May burn rapidly with flare-burning effect. Containers may explode when heated. Runoff may create fire or explosion hazard. (ERG, 2016)

5.3Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6.Accidental release measures

6.1Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2Environmental precautions

Evacuate danger area! Remove all ignition sources. Wash away remainder with plenty of water. Do NOT absorb in saw-dust or other combustible absorbents.

6.3Methods and materials for containment and cleaning up

Cover the spill with a 1:1:1 mixture by weight of sodium carbonate or calcium carbonate, clay cat litter (bentonite) and sand. Dampen this mixture thoroughly with water, then scoop into a beaker using a plastic or cardboard shovel. Treat as per waste disposal procedure. Wash the area of the spill thoroughly with soap and water.

7.Handling and storage
7.1Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use.Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.
7.2Conditions for safe storage, including any incompatibilities
Fireproof. Separated from combustible substances and reducing agents. Store only in original packaging. See Chemical Dangers.All precautions must be taken to guard against fire and explosion hazards. Keep in a cool place out of direct rays of the sun; away from sparks, open flames and other sources of heat; away from shock, rough handling, friction from grinding, etc. Isolated storage is required; keep away from possible contact with acids, alcohols, ethers or other reducing agents or polymerization catalysts such as dimethylaniline. Complete instructions on storage and handling available from manufacturer.

8.Exposure controls/personal protection
8.1Control parameters
Occupational Exposure limit values
Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 5 mg/cu m.
Biological limit values
no data available
8.2Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
8.3Individual protection measures, such as personal protective equipment (PPE)
Eye/face protection
Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection
Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique(without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.
Respiratory protection
Wear dust mask when handling large quantities.
Thermal hazards
no data available

9.Physical and chemical properties

Physical state	white powder or clear solution
Colour	CRYSTALS
Odour	Faint, benzaldehyde-like odor.
Melting point/ freezing point	104-106\u00baC
Boiling point or initial boiling point and boiling range	80\u00b0C
Flammability	Combustible Solid (easily ignited and burns very rapidly).Many reactions may cause fire or explosion.
Lower and upper explosion limit / flammability limit	no data available
Flash point	95\u00b0C
Auto-ignition temperature	80\u00b0C
Decomposition temperature	103-105\u00b0C
pH	no data available
Kinematic viscosity	no data available
Solubility	In water:Insoluble
Partition coefficient n-octanol/water (log value)	log Kow = 3.46
Vapour pressure	less than 0.1 mm Hg at 20\u00b0C
Density and/or relative density	1.16g/mLat 25\u00b0C(lit.)
Relative vapour density	no data available
Particle characteristics	no data available

10.Stability and reactivity
10.1Reactivity
no data available
10.2Chemical stability
VERY STABLE /SRP: SHELF LIFE/ @ ORDINARY TEMP (25 DEG C)
10.3Possibility of hazardous reactions
Unstable to heat; decomposes with evolving oxygen, resulting in advancing fire. Sensitive to impact and friction.BENZOYL PEROXIDE is a white, odorless powder, moderately toxic. It is most dangerous when it contains less then 1% water. A moisture content of 3% allowed slow burning only, and at 5% ignition did not occur [McCloskey, C. M. et al., Chem. Abs., 1967, 66, 12613c]. Mixed with a large surplus of water (30% or more), it is relatively safe. In dry form, it is a very dangerous material. It will explode spontaneously when heated above melting point (103\u00b0 C). An explosion which occurred when a screw-capped bottle of the peroxide was opened has been attributed to friction, which initiated a mixture of peroxide and organic dust in the cap threads [Lappin, G. R., Chem. Eng. News, 1948, 26, p.3518]. A violent explosion occurred during purification of the peroxide by Soxhlet extraction with hot chloroform [Anon., Sichere Chemiearb., 1976, 28, p. 49]. It is a powerful oxidizer, which ignites readily and burns rapidly. In contact with reducing agents, it may ignite by spontaneous chemical reaction. It must be kept in a cool place, in isolation and out of the sunlight or sources of heat. Also, avoid shock or friction. It reacts violently with inorganic or organic acids, alcohols, amines, metallic naphthenates and polymerization accelerators (e.g., N,N-dimethylaniline). Explosive or violent reaction upon contact with dimethyl sulfide, lithium aluminum hydride or aniline [Bretherick, 5th ed., 1995, p. 1140]. Mixture with carbon tetrachloride and ethylene explodes when exposed to heat [Bolt, R. O. et al., Chem. Eng. News, 1947, 25, p. 1866]. Ignition occurred upon contact with methyl methacrylate [MCA Case History No. 996], polymerization of vinyl acetate in ethyl acetate accelerated out of control leading to ignition and explosion [Vervalin, 1973, p. 81]. At 50\u00b0 C a mixture of dibenzoyl peroxide and charcoal reacts violently producing dense white smoke of benzoic acid, benzene, phenyls and carbon dioxide [Leleu, Cahiers, 1980, 99, p. 279].
10.4Conditions to avoid
no data available
10.5Incompatible materials
Special care must be taken to avoid contamination with combustible materials (wood, paper), various inorganic & organic acids, alkalies, alcohols, amines, easily oxidizable materials such as ethers, or materials used as accelerators in polymerization reactions.
10.6Hazardous decomposition products
Explosive decomposition above the melting point ... forms flammable products.

11.Toxicological information
Acute toxicity
Oral: LD50 Rat oral 7710 mg/kg
Inhalation: no data available
Dermal: no data available
Skin corrosion/irritation
no data available
Serious eye damage/irritation
no data available
Respiratory or skin sensitization
no data available
Germ cell mutagenicity
no data available
Carcinogenicity
Evaluation: There is inadequate evidence in humans for the carcinogenicity of benzoyl peroxide. There is limited evidence in experimental animals for the carcinogenicity of benzoyl peroxide. Overall evaluation: Benzoyl peroxide is not classifiable as to its carcinogenicity to humans (Group 3).
Reproductive toxicity
no data available
STOT-single exposure
no data available
STOT-repeated exposure
no data available
Aspiration hazard
no data available

12.Ecological information
12.1Toxicity
Toxicity to fish: no data available
Toxicity to daphnia and other aquatic invertebrates: no data available
Toxicity to algae: no data available
Toxicity to microorganisms: no data available
12.2Persistence and degradability
In the Japanese MITI test, benzoyl peroxide (present at 100 ppm) reached 84 percent of its theoretical BOD in 21 days, using an activated sludge inoculum(1).
12.3Bioaccumulative potential
An estimated BCF of 250 was calculated for benzoyl peroxide(SRC), using an experimental log Kow of 3.46(1,SRC) and a recommended regression-derived equation(2). According to a classification scheme(3), this BCF suggests that bioconcentration in aquatic organisms is high(SRC).

12.4Mobility in soil
The Koc of benzoyl peroxide is estimated as approximately 1,800(SRC), using a measured log Kow of 3.46(1) and a regression-derived equation(2,SRC). According to a recommended classification scheme(3), this estimated Koc value suggests that benzoyl peroxide is expected to have low mobility in soil(SRC).
12.5Other adverse effects
no data available

13.Disposal considerations
13.1Disposal methods
Product
The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.
Contaminated packaging
Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14.Transport information
14.1UN Number
ADR/RID: UN3108 IMDG: UN3108 IATA: UN3108
14.2UN Proper Shipping Name
ADR/RID: ORGANIC PEROXIDE TYPE E, SOLID
IMDG: ORGANIC PEROXIDE TYPE E, SOLID
IATA: ORGANIC PEROXIDE TYPE E, SOLID
14.3Transport hazard class(es)
ADR/RID: 5.2 IMDG: 5.2 IATA: 5.2
14.4Packing group, if applicable
ADR/RID: II IMDG: II IATA: II
14.5Environmental hazards
ADR/RID: no IMDG: no IATA: no
14.6Special precautions for user
no data available
14.7Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
no data available

15.Regulatory information
15.1Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Benzoyl peroxide	Benzoyl peroxide	94-36-0	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.

Section 16: Other Information
This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.