SAFETY DATA SHEET (SDS)

(according to Regulation (EC) No. 1907/2006 of the European Parliament and of the Council – REACH)

NOTICE: An SDS for an ozonation mixture is **not a mandatory document**, as the mixture is **not placed on the market**. This SDS is provided as **basic information for users of ozone-generating devices** regarding the hazards of ozone and its mixtures with air and/or oxygen.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name: OZONE or OZONE IN A MIXTURE WITH AIR and/or OXYGEN
Other names / synonyms: Triatomic oxygen; ozone
Registration number: Ozone is used as an active biocidal substance for water and air disinfection. Therefore, it is exempt from registration obligations under REACH.

Relevant identified uses of the substance or mixture and uses advised against

Identified use: Biocidal agent for treatment of water and air.
Uses advised against: Not specified; substance is exempt from REACH registration.

Details of the supplier of the safety data sheet

Manufacturer: GRIZZLY s.r.o.
Registered office: Kráľovská 811/34, 927 01 Šaľa, Slovakia
Company ID: 46648241
Phone: +421 905 462 041
Email: obchod@grizzly.pro
Website: www.grizzly.pro

SECTION 2: Hazards identification

Classification of the substance or mixture

The classification of ozone mixed with air or oxygen (as generated in ozone generators) depends on ozone concentration.

- Ozone from air: typically **2–6%**
- Ozone from pure oxygen: typically **6–15%**

Classification of pure ozone:

- **Oxidising gas, Category 1**; **H270** May cause or intensify fire; oxidiser.
- **Acute toxicity (inhalation), Category 1**; **H330** Fatal if inhaled.
- **Germ cell mutagenicity, Category 2**; **H341** Suspected of causing genetic defects (by inhalation).
- **Skin irritation, Category 2**; **H315** Causes skin irritation.
- **Eye irritation, Category 2**; **H319** Causes serious eye irritation.
- **STOT SE, Category 3**; **H335** May cause respiratory irritation.
- **STOT RE, Category 2**; **H373** May cause damage to the respiratory system through prolonged or repeated exposure by inhalation.
- **Aquatic acute, Category 1**; **H400** Very toxic to aquatic life.

For mixtures containing 2–15% ozone, sufficient data (especially for toxicity and oxidising properties of less concentrated mixtures) may be limited. For precautionary reasons, these mixtures may be considered as hazardous as highly concentrated mixtures and pure ozone.

Label elements (CLP)

Ozone mixtures generated on-site are not placed on the market. Ozone decomposes rapidly and is consumed shortly after production (mixed into treated air or water without long-term storage). Equipment where ozone is present should be labelled according to applicable safety signage regulations.

Product identifier: Ozone / Ozone in mixture with air/oxygen
CAS No.: 10028-15-6 (pure ozone)
Signal word: Danger
Hazard statements:
H270, H330, H341, H315, H319, H335, H373, H400

Other hazards

According to WHO studies, long-term exposure to ozone is considered risky and may accelerate ageing-related effects.

SECTION 3: Composition/information on ingredients

Mixtures

Main hazardous component:

Ozone

- **CAS:** 10028-15-6
- **EC:** 233-069-2
- **Concentration:** < 15% (v/v)
- **Classification (CLP):** Ox. Gas 1 (H270), Acute Tox. 1 (H330), Muta. 2 (H341), Skin Irrit. 2 (H315), Eye Irrit. 2 (H319), STOT SE 3 (H335), STOT RE 2 (H373), Aquatic Acute 1 (H400)

(Full text of abbreviations and H-statements: see Section 16.)

SECTION 4: First aid measures

Description of first aid measures

If exposed or concerned: **Seek medical advice/attention immediately. Call a doctor at once.**

Inhalation:
Move the affected person to fresh air and keep at rest in a position comfortable for breathing. If breathing is irregular, administer oxygen (trained personnel only). If breathing stops, start artificial respiration and seek medical help. Never give anything by mouth to an unconscious person. Place unconscious person in the recovery position and call a doctor.

Skin contact:
Wash affected skin thoroughly with soap and water.

Eye contact:
Remove contact lenses if present and rinse eyes with clean water for 10–15 minutes. If irritation persists, seek medical attention.

Ingestion:
Not applicable.

Most important symptoms and effects, both acute and delayed

Inhalation: Ozone is highly toxic if inhaled. Irritates eyes, mucous membranes, and respiratory tract. 1 ppm may cause headache and respiratory irritation. High concentrations may cause tearing, vomiting, nausea, breathing difficulty, low heart rate and blood pressure, chest pain, pulmonary oedema (potentially fatal). Physical exertion during exposure increases sensitivity.
Skin/eyes: Higher concentrations may irritate skin and eyes.
Delayed effects: Repeated exposure may cause lung damage (chronic bronchitis, fibrosis, emphysematous changes). Even low exposure can severely affect asthmatics.

Indication of any immediate medical attention and special treatment needed

Medical observation recommended for **24–48 hours** after exposure; pulmonary oedema may appear with delay.

SECTION 5: Firefighting measures

Extinguishing media

Ozone itself is not flammable. Choose extinguishing media appropriate to the burning material.

Special hazards arising from the substance or mixture

Strong oxidising agent; contact with flammable material may cause fire. Reacts violently with many organic and inorganic substances.

Advice for firefighters

Use self-contained breathing apparatus (EN 137) and protective equipment (EN 469, EN 659, EN 443). If possible, stop gas supply.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Stop the ozone generator. Evacuate persons from affected areas. Intensively ventilate enclosed spaces. Entry into areas with elevated ozone concentration (>0.2 ppmV) only with independent air supply (SCBA). Re-entry permitted only after concentration drops below allowable limit (<0.1 ppmV).

Environmental precautions

Not required.

Methods and material for containment and cleaning up

Ensure proper technical condition of the ozonator and follow operating procedures. Remove ozone by thorough ventilation.

Reference to other sections

See Sections 8 and 13.

SECTION 7: Handling and storage

Precautions for safe handling

Read special instructions before use. Do not use the device unless all safety instructions are read and understood. Do not inhale ozone. Use required PPE if necessary. If exposure limits are exceeded, use respiratory protection. After work wash hands and face with soap and water. Do not eat, drink or smoke while working.

Ventilate enclosed spaces where ozone could be released.

Conditions for safe storage

Ozone generated for hygiene purposes is not stored.

Specific end use(s)

Further information is contained in technological instructions for operation, servicing and maintenance of ozone systems.

SECTION 8: Exposure controls/personal protection

Control parameters

Ozone (CAS 10028-15-6): 0.1 / 0.2 (mg/m³)
Conversion factor to ppm: 0.509
(DNEL/PNEC not available.)

Exposure controls

Ensure sufficient ventilation. Provide emergency shower/eye wash near the workplace. Workplace monitoring and protective measures must be defined by occupational safety responsible person.

Personal protective equipment

- **Eye/face:** Not required; contact lenses not recommended
- **Skin/hands:** Not required under normal conditions
- **Respiratory:** If ventilation is insufficient, use SCBA / independent air supply
- **Thermal hazards:** None

Environmental exposure controls

Do not release high concentrations to ambient air or water. Elevated ozone in surface waters may threaten aquatic life.

SECTION 9: Physical and chemical properties

Appearance: Colourless at low concentration; bluish at high concentration.
Odour: Sharp; detectable at 0.02–0.05 ppm; prolonged exposure reduces odour perception.
Odour threshold: strongly unpleasant around 1 ppm.
Melting point: -192.7 °C
Boiling point: -111.9 °C
Flammability: Non-flammable
Vapour pressure: >1 atm
Vapour density: 1.56 (air = 1.0)
Solubility in water: 570 mg/L at 20 °C
Oxidising properties: Strong oxidiser
(Other parameters: not applicable / not available)

SECTION 10: Stability and reactivity

Ozone is highly reactive and decomposes spontaneously to oxygen. It can react violently (including explosively) with many substances, especially oxidisable/reducing agents, alkenes and unsaturated organics (ozonides), aromatic compounds and ethers. Avoid contact with incompatible materials.

Hazardous decomposition products: oxygen.

SECTION 11: Toxicological information (summary)

Highly toxic by inhalation. Irritates skin/eyes/respiratory tract. Repeated exposure can damage lungs. Ozone is not classified by NTP/IARC/OSHA as a carcinogen. Some sources suggest potential fetotoxicity, but not classified as reproductive toxicant. Not relevant: aspiration hazard (gas).

SECTION 12: Ecological information (summary)

Very toxic to aquatic life at higher concentrations. Ozone decomposes; persistence depends on humidity/contaminants/air movement/temperature. Not PBT/vPvB. Contributes to photochemical smog; long exposure may accelerate ageing effects.

SECTION 13: Disposal considerations

If ozone must be removed, treat as waste gas under air protection regulations. Larger volumes should be de-ozonated (decomposed) before release.

SECTION 14: Transport information

Mixture is consumed on site, not stored in containers, and is therefore not subject to transport. UN number / proper shipping name / hazard class / packing group: **not applicable**.

SECTION 15: Regulatory information (summary)

REACH: ozone is not SVHC; no authorisation/restriction listed under REACH.
CLP: classification according to Regulation (EC) 1272/2008.
Due to acute toxicity (H330), handling requires appropriate professional competence and compliance with occupational health and safety rules. National exposure limits apply (e.g., workplace limits and indoor air guideline values as referenced).

Chemical safety assessment under REACH: not required.

SECTION 16: Other information (summary)

Revision history and abbreviations (CAS, EC, PBT, vPvB, DNEL, PNEC, LD50, LC50, etc.).
Classification sourced from ECHA classification and labelling list.
Information provided is based on best current knowledge and legislation. The SDS describes safety aspects and is not a technical specification.