



Material Safety Data Sheet

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product information

Trade name : Jet-Oxide
Use of the Substance / Preparation : Peroxyacetic acid-based sanitizer/disinfectant
Function : Liquid horticulture, algaecide and fungicide (see label)
Company : JET Harvest Solutions
P.O. Box 915139
Longwood, Florida 32791
USA
Telephone : 877-866-5773
Fax : 407-298-2377
U.S. EMERGENCY NUMBER : **407-619-3421**
Product Regulatory Services : 407-523-7842

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature

Preparation of peracetic acid, hydrogen peroxide, acetic acid and water in balance.

Information on ingredients / Hazardous components

| | | | |
|-------------------|-----------|--------------------|-----------|
| Peracetic acid | | | |
| CAS-No. | 79-21-0 | Percent (Wt./ Wt.) | 5 % |
| Hydrogen peroxide | | | |
| CAS-No. | 7722-84-1 | Percent (Wt./ Wt.) | 20 < 30 % |
| Acetic acid | | | |
| CAS-No. | 64-19-7 | Percent (Wt./ Wt.) | 6 < 10 % |

Other information

This material is classified as hazardous under OSHA regulations.

3. HAZARDS IDENTIFICATION

*** EMERGENCY OVERVIEW ***

Form-liquid **Color-colourless, clear** **Odor-stinging**

Causes burns.

May cause fire.

Risk of decomposition in contact with incompatible substances, impurities, metals, alkalis, reducing agents.

Danger of decomposition if exposed to heat

see also section 10.

Eye contact

Corrosive, Causes eye burns.

Skin Contact

Corrosive, Liquid or vapor causes burns which may be delayed.

Inhalation

Possible discomfort: irritation of mucous lining (nose, throat, eyes), coughing.

Ingestion

Causes digestive tract burns.

4. FIRST AID MEASURES**General advice**

Move out of dangerous area.
Take care of your own personal safety.
see section 8.

Inhalation

Take affected persons out into the fresh air.
Possible discomfort: Irritates skin and mucous linings of the eyes and respiratory tract. cough.

If breathing difficulties occur (e.g. severe continual coughing):

Keep patient half sitting with upper body raised.
Keep warm and in a quiet place.
Call a physician immediately.

Skin contact

After contact with skin, wash immediately with plenty of water.
Consult a physician.
Take off immediately all contaminated clothing.

Eye contact

With eye held open, thoroughly rinse immediately with plenty of water for at least 10 minutes.
Protect unharmed eye.
Continue rinsing process with eye rinsing solution.

Call ambulance. (Cue: caustic burn of the eyes)

Immediate further treatment in ophthalmic hospital/ ophthalmologist.
Continue rinsing eye until arrival at ophthalmic hospital.

Ingestion

Do not induce vomiting.
Danger of penetration of the lungs (danger to breathing) when swallowed or vomited, due to gas evolution and foam formation.

Only when patient fully conscious:

Have the mouth rinsed with water.
Have patient drink plenty of water in small sips.
Keep patient warm and at rest.

Notify ambulance immediately (keyword: acid burn).

Notes to physician

Therapy as for chemical burn.
Following inhalation:
Formation of a toxic lung edema is possible if product continues to be inhaled despite acute irritative effect (e.g. if it is not possible to leave the danger area).
Prophylaxis of a toxical lung oedema with inhalative steroids (Dexamethasone aerosol dosing spray, f.ex. auxilosone).
If substance has been swallowed:
Aspiration hazard!
Risk of gaseous embolisms!
In case of excessive strain on the stomach due to gas evolution, insert siphon tube.
Early endoscopy in order to assess mucosa lesions in the oesophagus and stomach which may appear.
If necessary, suck away leftover substance.
Do not administer activated charcoal, since risk of release of large amounts of gas from hydrogen peroxide !

5. FIRE-FIGHTING MEASURES

| | |
|-----------------------|--|
| Flash point | Not measurable (formation of foam) Method: ISO 2719 |
| Lower explosion limit | no data available |
| Upper explosion limit | no data available |

Suitable extinguishing media

water spray foam dry powder carbon dioxide (CO₂)

Extinguishing media which must not be used for safety reasons

organic compounds

Specific hazards during fire fighting

Contact with the following substances may cause inflammation: flammable substances.

Involved in fire, it may decompose yielding oxygen. Risk of overpressure and burst due to decomposition in confined spaces and pipes. Release of oxygen may support combustion.

In case of fire, remove the endangered containers and bring to a safe place, if this can be done safely. Keep away from heat. If necessary: In the case of fire, cool the containers that are at risk with water or dilute with water (flooding).

Special protective equipment for fire-fighters

In the case of fire, wear respiratory protective equipment independent of surrounding air and chemical protective suit.

Further information

Evacuate personnel to safe areas. Keep out unprotected persons. Keep unauthorised persons away.

Water used to extinguish fire should not enter drainage systems, soil, or stretches of water. Ensure there are sufficient retaining facilities for water used to extinguish fire. Contaminated fire-extinguishing water must be disposed of in accordance with the regulations issued by the appropriate local authorities. Fire residues should be disposed of in accordance with the regulations.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions**

Product causes chemical burns.

Wear personal protective equipment; see section 8.

Evacuate personnel to safe areas.

Keep out unprotected persons.

Keep unauthorised persons away.

Environmental precautions

Observe regulations on prevention of water pollution (collect, dam up, cover up).

Do not allow to run into water channels, surface water, or into the ground.

Methods for cleaning up

Keep away from incompatible substances.

Keep away from flammable substances.

see section 10.

Clean contaminated surface thoroughly.

Recommended cleaning agent: water.

Dispose of absorbed material in accordance with the regulations.

see section 13.

With small amounts:

Dilute product with lots of water and rinse away.

see section 12.

or

Absorb with liquid-binding material, e. g.: chemisorption, diatomaceous earth, universal binder

Do not use: textiles, saw dust, combustible substances.

Pick up mechanically. Collect in suitable containers.

Make safe or remove all sources of ignition.

Isolate defective containers immediately, if possible and safe to do.

Shut off leak, if possible and safe to do.

Place defective containers in waste receptacle (waste packaging receptacle) made of plastic (not metal).

Do not seal defective containers or waste receptacles airtight (danger of bursting due to product decomposition).

Never return spilled product into its original container for re-use. (Risk of decomposition.)

7. HANDLING AND STORAGE**Handling****Safe handling advice**

Avoid contact with skin, eyes and clothing.

Do not breathe in vapours, aerosols, sprays.

For personal protection see section 8

Handle in accordance with good industrial hygiene and safety practices.
Avoid impurities and heat effect.
Ensure there is good room ventilation.
Immediately change moistened and saturated work clothes.
Immediately rinse contaminated or saturated clothing with water.
Never return spilled product into its original container for re-use. (Risk of decomposition.).
Provide for installation of emergency shower and eye bath.
Set up safety and operation procedures.

Advice on protection against fire and explosion

Avoid sun rays, heat, heat effect.
Keep away from sources of ignition - No smoking.
Keep away from flammable substances.
Keep away from incompatible substances.
see section 10.

To cool, spray closed containers with water spray jet. In case of fire, remove the endangered containers and bring to a safe place, if this can be done safely.
see section 5.

Storage

Requirements for storage areas and containers

cool, well ventilated, clean, lockable.
Recommendation: Acid-proof floor.
Use adequate venting devices on all packages, containers and tanks and check correct operation periodically.
Do not confine product in unvented vessels or between closed valves.
Risk of overpressure and burst due to decomposition in confined spaces and pipes.
Check containers and tanks at regular intervals to detect any special changes such as pressure build-up (distension), damage, leakage.
Transport and store container in upright position only.
Do not empty container by means of pressure.
Always close container tightly after removal of product.
Do not keep the container sealed.
Ensure tightness at all times. Avoid leakage.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Only use containers which are specially permitted for: Peracetic acid.
and/or
For transport, storage and tank installations only use suitable materials.
Suitable materials stainless steel (1.4571)
Suitable materials polyethylene, polypropylene, polyvinyl chloride (PVC),
Suitable materials polytetrafluoroethylene, glass, ceramics.
Unsuitable materials mild steel, Iron, copper, brass, Bronze, aluminium, zinc.

Further information

Avoid sun rays, heat, heat effect.
Avoid impurities.
see also section 15.

Regularly verify the availability of water to deal with emergencies (for cooling, tank flooding, fire fighting) and check correct operation periodically.

For detailed information on design specifications for the construction of tank- and dosing installations ask the producer for advice.

Advice on common storage

Do not store together with: alkalis, reductants, metallic salts (risk of decomposition).
Do not store together with: inflammable substances (risk of fire).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational exposure controls

• **Hydrogen peroxide**

CAS-No. 7722-84-1
Control parameters 1 ppm
 1 ppm
 1.4 mg/m3
 1 ppm
 1.4 mg/m3

Time Weighted Average (TWA):(ACGIH)
Recommended exposure limit (REL):(NIOSH)
PEL:(OSHA Z1)

1 ppm
1.4 mg/m3
1 ppm
1.4 mg/m3

Time Weighted Average (TWA):(OSHA Z1A)

Time Weighted Average (TWA) Permissible
Exposure Limit (PEL):(US CA OEL)
(ACGIH)

Listed.

(US CA OEL)

Listed.

- **Acetic acid**

CAS-No. 64-19-7
10 ppm
15 ppm
10 ppm
25 mg/m3
10 ppm
25 mg/m3
40 ppm
15 ppm
37 mg/m3

Time Weighted Average (TWA):(ACGIH)
Short Term Exposure Limit (STEL):(ACGIH)
PEL:(OSHA Z1)

Time Weighted Average (TWA) Permissible
Exposure Limit (PEL):(US CA OEL)
Ceiling Limit Value:(US CA OEL)
Short Term Exposure Limit (STEL):(US CA
OEL)

Other information

Suitable measuring processes are:

hydrogen peroxide

OSHA method ID 006

OSHA method VI-6

Acetic acid

NIOSH method 1603

OSHA method ID 186

Engineering measures

Ensure suitable suction/aeration at the work place and with operational machinery.
see also section 7.

Personal protective equipment

Respiratory protection

Do not inhale vapour, aerosols, mist.

In case of larger quantities: If open handling is unavoidable:

If workplace exposure limit is exceeded apply Respiratory protective equipment.

wear a self contained respiratory apparatus

Respirator with A2B2E2K1P2 combination filter (Draeger)

Respirator with OV/AG combination filter (3M)

Respirator with ABEK2P3 combination filter (3M)

If necessary: Local ventilation.

Hand protection

Polychloroprene (PCP)

Eye protection

wear basket-shaped glasses or safety glasses with side shields when handling larger quantities; protective screen.

Skin and body protection

Wear protective clothing, acid-proof.

Suitable materials are:

PVC, neoprene, nitrile rubber (NBR), rubber.

Rubber or plastic boots.

Hygiene measures

Avoid contact with skin, eyes and clothing.

Do not inhale vapour, aerosols, mist.

Ensure there is good room ventilation.

Avoid contaminating clothes with product.

Immediately change moistened and saturated work clothes.

Immediately rinse contaminated or saturated clothing with water.

Any contaminated protective equipment is to be cleaned after use.

No eating, drinking, smoking, or snuffing tobacco at work.

Wash face and/or hands before break and end of work.

Preventive skin protection recommended.

Use barrier cream regularly.

Protective measures

Handle in accordance with good industrial hygiene and safety practices.

The work-place related airborne concentrations have to be kept below of the indicated exposure limits.

If the limits at the workplace are exceeded and/or larger amounts are released (leakage, spilling, dust) the indicated respiratory protection should be used.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

| | |
|-------|-------------------|
| Form | Liquid |
| Color | colourless, clear |
| Odor | Stinging |

Safety data

| | |
|---|--|
| pH | ca. 0.6 (20 °C) Medium: Product |
| Melting point/range | ca. -28 °C |
| Boiling point/range | not applicable decomposition > 60 °C |
| Flash point | Method: ISO 2719 Not measurable (formation of foam) |
| Autoignition temperature: | 395 °C Method: DIN 51 794 |
| Autoinflammability | not spontaneously flammable |
| Lower explosion limit | no data available |
| Upper explosion limit | no data available |
| Vapour pressure | ca. 27 hPa (20 °C) |
| Density | ca. 1.12 g/cm ³ (20 °C) |
| Bulk density | not applicable |
| Water solubility | completely miscible |
| Partition coefficient (n-octanol/water) | log Pow: -1.25 measured as peracetic acid |
| Viscosity, dynamic | not determined |

Further information

| | |
|----------------------|--|
| Miscibility in water | completely miscible |
| Other information | oxidising agent oxidizing (according to EC Directive 67/548/EEC) |

10. STABILITY AND REACTIVITY

| | |
|---------------------|---|
| Conditions to avoid | sun rays, heat, heat effect |
| Materials to avoid | Impurities, decomposition catalysts, metal salts, alkalis, reducing substances., metals, nonferrous heavy metal, aluminium, zinc., Possible hazardous reaction: decomposition |

| | |
|----------------------------------|--|
| | flammable materials, Possible hazardous reaction: Spontaneous ignition. |
| | organic solvents, Possible hazardous reaction: Danger of explosion. |
| Hazardous decomposition products | decomposition products Under conditions of thermal decomposition: steam, oxygen |
| Hazardous reactions | Product is a(n) oxidizing agent and reactive. Stable under recommended storage conditions. Product is supplied in stabilised form. |
| | Danger of decomposition if exposed to heat |
| | When coming in contact with the product, impurities, decomposition catalysts, metallic salts, alkalis, reducing agents may lead to self-accelerated, exothermic decomposition and the formation of oxygen. |
| | Risk of overpressure and burst due to decomposition in confined spaces and pipes. Release of oxygen may support combustion. |

11. TOXICOLOGICAL INFORMATION

| | |
|-------------------------------------|---|
| Product Acute oral toxicity | LD50 Rat: 1859 mg/kg Method: Literature Test substance: Peracetic acid 5 % |
| Component Acute inhalation toxicity | LC50 rat: 0.49 mg/l Vapor as peracetic acid |
| Product Acute dermal toxicity | LD50 rat: 1147 mg/kg Method: literature Test Substance: Peracetic acid 5% |
| Product Skin irritation | Rabbit / 0.75 h corrosive Method: OECD test guideline 404 Test substance: Peracetic acid 5% |
| Product Eye irritation | Rabbit corrosive Method: literature Test substance: Peracetic acid 5 % |
| Product Sensitization | Draize-test guinea pig: negative Method: literature Test substance: Peracetic acid 5 % |
| Product Gentoxicity in vitro | Amestest predominantly negative Method: literature Unscheduled DNA synthesis-test (UDS) Negative (literature value) Chromosomal aberration V79 cells Negative Method: OECD TG 473 HGPRT-Test V 79 cells Negative Method: OECD TG 476 |
| Product Gentoxicity in vivo | Micronucleus test Mouse, oral negative Method: Literature |

Unscheduled DNA synthesis -test (UDS) Rat
negative
Method: literature

Product Human experience

Caustic, Irritation and on occasion caustic effects to the skin and mucous membranes (eyes, respiratory channels, in the stomach/intestinal tracts after swallowing) are to be expected from local contact. Also in diluted solutions onset of effects within seconds or minutes depending on concentration.

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

| | |
|-------------------------------|--|
| Biodegradability | Readily biodegradable. Exposure time: 28 d Method: OECD TG 301 E At non-bacteriotoxic concentrations |
| Physico-chemical removability | Method: literature Hydrolyses after 7 days by approx. 50 %. pH 4, Hydrolyses after 1 day to approx. 50% pH 7 and pH 9 |
| Further Information | Under ambient conditions quick hydrolysis, Reduction or decomposition occurs. The following substances are formed: oxygen, water, acetic acid. Acetic acid is easily biodegradable |

Behaviour in environmental compartments

| | |
|-----------------|-------------------------------|
| Bioaccumulation | Low log Pow: see chapter 9 |
|-----------------|-------------------------------|

Ecotoxicity effects

| | |
|-----------------------------|---|
| Toxicity to fish | LC50 Pleuronectes platessa: 11 mg/l / 96 h Method: literature As peracetic acid LC50 Oncorhynchus mykiss: 1-2 mg/l / 96 h Method: literature As peracetic acid |
| Toxicity to daphnia | EC50 Daphnia magna: .5 – 1.1 mg/l / 48 h Method: OECD TG 202 As peracetic acid (literature value) |
| Toxicity to algae | IC 50 selenastrum capricornutum: ca. 0.18 mg/l / 120 h Method: US-EPA-method Chronic As peracetic acid (literature value) |
| Toxicity to bacteria | EC50 Activated sludge: 5:1 mg/l / 3 h Method: OECD TG 209 As peractic acid |
| Chronic toxicity in daphnia | NOEC Daphnia magna: 0.05 mg/l / 21 d Method: OECD 211 As peracetic acid |

Further information on ecology

| | |
|--------------------------------|--|
| AOX | The product does not contain any organically bonded halogen. |
| General Ecological Information | does not contain any heavy metals and compounds from EC directive 76/464: e.g. arsenic-, lead cadmium Mercury organic compounds organic halogen compounds |

13. DISPOSAL CONSIDERATIONS

WASTE

Advice on disposal

Disposal according to local authority regulations. Recommendation: Offer surplus and non-recyclable solutions to a licensed disposal company. Taking into account local regulations the product may be disposed of as waste water after neutralisation. If necessary contact the relevant authorities.

14. TRANSPORT INFORMATION

D.O.T. Road/Rail

| | |
|----------------------|--|
| Class | 5.1 |
| UN-No | 3149 |
| Packing group | II |
| Subsidiary risk | 8 |
| Proper shipping name | Hydrogen peroxide and peroxyacetic acid mixtures, stabilized |

Sea transport IMDG-Code

| | |
|--|---|
| Class | 5.1 |
| UN-No | 3149 |
| Packaging group | II |
| Subsidiary risk | 8 |
| EmS | F-H, S-Q |
| Proper technical name (Proper shipping name) | HYDROGEN PEROXIDE AND PEROXYACETIC ACID MIXTURE, STABILIZED |

Air transport ICAO-TI/IATA-DGR

| | |
|--|--|
| Class | 5.1 |
| UN-No | 3149 |
| Packaging group | II |
| Subsidiary risk | 8 |
| Proper technical name (Proper shipping name) | Hydrogen peroxide and peroxyacetic acid mixture stabilized |

Loading instructions/Remarks

| | |
|--------|---|
| IATA_C | ERG-Code 5C |
| IATA_P | ERG-Code 5C |
| IMDG | On deck only H: see chapter 3.2, Column 17IMDG code |
| IMDG | "Separated from" permanganates and class 4.1. |

Transport/further information

Protect from thermal radiation.

15. REGULATORY INFORMATION

Information on ingredients / Non-hazardous components

This product contains the following non-hazardous components

| | | | |
|---------|-----------|--------------------|------|
| Water | | | |
| CAS-No. | 7732-18-5 | Percent (Wt./ Wt.) | 61 % |

US Federal Regulations

OSHA

If listed below, chemical specific standards apply to the product or components:

- None listed

Clean Air Act Section (112)

If listed below, components present at or above the de minimus level are hazardous air pollutants:

- None listed

CERCLA Reportable Quantities

If listed below, a reportable quantity (RQ) applies to the product based on the percent of the named component:

- Acetic acid
CAS-No. 64-19-7
Reportable Quantity 73529 lbs

SARA Title III Section 311/312 Hazard Categories

The product meets the criteria only for the listed hazard classes:

- Acute Health Hazard

SARA Title III Section 313 Reportable Substances

If listed below, components are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

- None listed

Toxic Substances Control Act (TSCA)

If listed below, non-proprietary substances are subject to export notification under Section 12 (b) of TSCA:

- None listed

Other US Federal Regulatory Information

Other countries: observe the national regulations.

State Regulations

California Proposition 65

A warning under the California Drinking Water Act is required only if listed below:

- None listed

International Chemical Inventory Status

Unless otherwise noted, this product is in compliance with the inventory listing of the countries shown below. For information on listing for countries not shown, contact JET Harvest Solutions Corporation Product Regulatory Department:

- USA (TSCA) Listed/registered

16. OTHER INFORMATION

HMIS Ratings

| | |
|-------------------|---|
| Health : | 3 |
| Flammability : | 1 |
| Physical Hazard : | 1 |

Further information

Data for the production of the safety data sheet from the studies available and from the literature.

Further information about the characteristics of the product can be found in the product code of practice or in the Product-Brochure .

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

The logo for JET-OXIDE features a stylized 'E' symbol on the left, composed of three horizontal bars of varying lengths. To the right of this symbol, the words 'JET-OXIDE' are written in a bold, italicized, red sans-serif font.