

SAFETY DATA SHEET**Jet-Ag 5%**

| | | | |
|---------------|---------------|---------------|-----------------|
| Material no. | | Version | 7.0 / US |
| Specification | 100343 | Revision date | 02/22/16 |
| Order number | | Print Date | 02/22/16 |
| | | Page | 2 / 21 |

hazard-defining component(s) (GHS)

- hydrogen peroxide solution
- Acetic acid
- Peracetic acid

Symbol(s)



Signal word

Danger

Hazard statement

H22 - 0DLQWHQVLILUHRGLVHU
 H290 - May be corrosive to metals.
 H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled
 H314 - Causes severe skin burns and eye damage.
 H335 - May cause respiratory irritation.

Precautionary statement:
Prevention

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
 P220 - Keep/Store away from clothing/ combustible materials.
 37DNHDQSUHFDXWLRQWRDYRLGPLQJZLWKFREXVWLEOHV
 P234 - Keep only in original SDFNDJLQJ.
 P264 - Wash skin thoroughly after handling.
 P270 - Do not eat, drink or smoke when using this product.
 P271 - Use only outdoors or in a well-ventilated area.
 P273 - Avoid release to the environment.
 P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection.

Precautionary statement:
Reaction

3,PPHGLDWHO\FDOOD32,621&17(5RUGRFWRUSKVLFLDQ
 33 ,)1+85HPRYHSHUVRQWRUHVKDLUDQGNNHHSFRPIRUWDEOHIRU
 EUHDWKLQJ
 P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 33 3,)1(65LQVHFDXWLRXVOZLWKZDWHUIRUVHYHUDOPLQXWHV
 5HPRYHFRQWDFWOHQVHVLISUHVHQWDQGHVWRGR&QWLQXHULQVLQJ
 P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated
 clothing. Rinse skin with water/shower.
 P363 - Wash contaminated clothing before reuse.
 33 ,QFDVHRILUH8VHZDWHUVSUDDOFRKROUHVLVVDQWIRDPGUFKHPLFDO
 RUFDUERQGLRGLGHWRHJWLQJXLVK
 P390 - Absorb spillage to prevent material damage.
 P391 - Collect spillage.

Precautionary statement:
Storage

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
 P405 - Store locked up.
 P406 - Store in corrosive resistant stainless steel container with a resistant inner
 liner.

Precautionary statement:
Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant.

Supplemental hazard information / Label elements

2.3. Other hazards

Risk of decomposition in contact with incompatible substances, impurities, metals, alkalis, reducing agents. Danger of decomposition if exposed to heat see also section 10.

SAFETY DATA SHEET**Jet-Ag 5%®**

| | | |
|---------------|---------------|----------|
| Material no. | Version | 7.0 / US |
| Specification | Revision date | 02/22/16 |
| Order Number | Print Date | 02/24/16 |
| | Page | 3 / 21 |

Use biocides safely. Always read the label and product information before use.
None known

3. Composition/information on ingredients**Chemical nature**

Preparation of perethanoic acid, hydrogen peroxide, ethanoic acid and water in balance.

| | | |
|---|-----------|-------------|
| • Peracetic acid | | 4.5% - 5.4% |
| CAS-No. | 79-21-0 | |
| Flammable liquids | | Category 3 |
| Organic peroxides | | Type D |
| Acute toxicity (Oral) | | Category 3 |
| Acute toxicity (Inhalation) | | Category 3 |
| Acute toxicity (Dermal) | | Category 4 |
| Skin corrosion | | Category 1A |
| Serious eye damage | | Category 1 |
| Specific target organ toxicity - single exposure (Respiratory system) | | Category 3 |
| Acute aquatic toxicity | | Category 1 |
| Chronic aquatic toxicity | | Category 1 |
| M-factor (aquatic, acute) | 1 | |
| M-factor (aquatic, chronic) | 10 | |
| • hydrogen peroxide solution | | 20% - 30% |
| CAS-No. | 7722-84-1 | |
| Oxidizing liquids | | Category 1 |
| Acute toxicity (Oral) | | Category 4 |
| Skin corrosion | | Category 1A |
| Serious eye damage | | Category 1 |
| Specific target organ toxicity - single exposure (Respiratory system) | | Category 3 |
| Acute aquatic toxicity | | Category 2 |
| Chronic aquatic toxicity | | Category 3 |
| • Acetic acid | | 6% - 10% |
| CAS-No. | 64-19-7 | |
| Flammable liquids | | Category 3 |
| Skin corrosion | | Category 1A |
| Serious eye damage | | Category 1 |

Other information

This material is classified as hazardous under OSHA regulations.

4. First aid measures**4.1. Description of first aid measures****General advice**

Pay attention to self-protection.

Remove victims from hazardous area. Immediately remove soiled or soaked clothing and remove it to a safe distance. Keep victim warm, in a stabilized position and covered.

Do not leave victims unattended.

If the casualty is unconscious: Place the victim in the recovery position.

SAFETY DATA SHEET**Jet-Ag®**

| | | | |
|---------------|---------------|---------------|-----------------|
| Material no. | | Version | 5.0 / US |
| Specification | 100343 | Revision date | 01/20/16 |
| Order Number | | Print Date | 01/20/16 |
| | | Page | 4 / 21 |

Inhalation

Potential for exposure by inhalation if aerosols or mists are generated.

Move victims into fresh air.

With labored breathing: Provide with oxygen. Consult a doctor.

If the casualty is not breathing: Perform mouth-to-mouth resuscitation, notify emergency physician immediately.

Skin contact

Wash off affected area immediately with plenty of water for at least 15 minutes.

If symptoms persist, consult a physician for treatment.

Eye contact

With eye held open, thoroughly rinse immediately with plenty of water for at least 10 minutes.

Consult an ophthalmologist immediately if the symptoms persist.

When dealing with caustic substances, notify emergency physician immediately (key words: burns in eye).

Ingestion

Rinse mouth.

Immediately give large quantities of water to drink.

Obtain medical attention.

When dealing with caustic substances, notify emergency physician immediately.

4.2. Most important symptoms and effects, both acute and delayed**Symptoms**

Irritation of skin and mucous membranes

Causes burns.

daze,

headache, dizziness, somnolence (drowsiness), nausea.

Health injuries may be delayed.

Hazards

Strongly irritating to corrosive.

Harmful in contact with skin and if swallowed.

Vapours may cause drowsiness and dizziness.

4.3. Indication of any immediate medical attention and special treatment needed

The initial focus is only on the local action, characterized by quickly progressing deep tissue damage.

In the eye, caustic/ irritating and harmful liquids cause, depending on the intensity of exposure, various levels of irritation, destruction, and ablation of the epithelium of the conjunctiva and cornea, corneal clouding, edema and ulcerations.

Danger! Possible loss of eyesight!

Superficial irritations and damage up to ulcerations and scarring develop on the skin.

After accidental absorption in the body, the pathology and clinical findings are dependent on the kinetics of the substance (quantity of absorbed substance, the absorption time, and the effectiveness of early elimination measures (first aid)/ excretion - metabolism).

A specific action of the substance is unknown.

In case of substances with high water solubility, irritations up to formation of necrosis in the upper respiratory tract may result after inhalation of caustic/ irritating aerosols and mists.

The initial focus is on the local action: signs of irritation of the respiratory tract such as coughing, burning behind the sternum, tears, burning in the eyes or nose.

There is a risk of pulmonary edema!

5. Fire-fighting measures**5.1. Extinguishing media**

Suitable extinguishing media: water spray, Foam, dry powder, Carbon dioxide (CO₂)

Unsuitable extinguishing media: organic compounds

SAFETY DATA SHEET**Jet-Ag®**

| | | | |
|---------------|---------------|---------------|-----------------|
| Material no. | | Version | 5.0 / US |
| Specification | 100343 | Revision date | 01/20/16 |
| Order Number | | Print Date | 01/20/16 |
| | | Page | 5/ 21 |

5.2. Special hazards arising from the substance or mixture

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).

5.3. Advice for firefighters

Evacuate personnel to safe areas.

Keep out unprotected persons.

Keep unauthorized 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.

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

6. Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Product causes chemical burns. Evacuate personnel to safe areas. Keep out unprotected persons. Keep unauthorized persons away.

6.2. 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. Obey relevant local, state, provincial and federal laws and regulations. Do not contaminate any lakes, streams, rivers, groundwater or soil.

6.3. Methods and material for containment and 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.

Additional advice

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).

Product taken out should not be returned into container.

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

7. Handling and storage**7.1. Precautions for safe handling**

SAFETY DATA SHEET**Jet-Ag®**

| | | | |
|---------------|---------------|---------------|-----------------|
| Material no. | | Version | 5.0 / US |
| Specification | 100343 | Revision date | 01/20/16 |
| Order Number | | Print Date | 01/20/16 |
| | | Page | 6 / 21 |



Avoid contact with skin, eyes and clothing. Do not breathe in vapours, aerosols, sprays. Wear personal protective equipment. Handle in accordance with good industrial hygiene and safety practice. 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.

7.2. Conditions for safe storage, including any incompatibilities**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

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).

SAFETY DATA SHEET

Jet-Ag®



| | | |
|---------------|---------------|-----------------|
| Material no. | Version | 5.0 / US |
| Specification | Revision date | 01/20/16 |
| Order Number | Print Date | 01/20/16 |
| | Page | 7 / 21 |

8. Exposure controls/personal protection

8.1. Control parameters

| | | |
|-------------------------------------|-------------------------------|--|
| • Peracetic acid | | |
| CAS-No. | 79-21-0 | |
| Control parameters | 0.4 ppm | Short Term Exposure Limit (STEL):(ACGIH) |
| type of exposure | Inhalable fraction and vapor. | |
| • hydrogen peroxide solution | | |
| CAS-No. | 7722-84-1 | |
| Control parameters | 1 ppm | Time Weighted Average (TWA):(ACGIH) |
| Control parameters | 1 ppm 1.4 mg/m3 | Permissible exposure limit:(OSHA Z1) |
| Control parameters | 1 ppm 1.4 mg/m3 | Time Weighted Average (TWA) Permissible Exposure Limit (PEL):(US CA OEL) |
| • Acetic acid | | |
| CAS-No. | 64-19-7 | |
| Control parameters | 10 ppm | Time Weighted Average (TWA):(ACGIH) |
| Control parameters | 15 ppm | Short Term Exposure Limit (STEL):(ACGIH) |
| Control parameters | 10 ppm 25 mg/m3 | Permissible exposure limit:(OSHA Z1) |
| Control parameters | 10 ppm 25 mg/m3 | Time Weighted Average (TWA) Permissible Exposure Limit (PEL):(US CA OEL) |
| Control parameters | 40 ppm | Ceiling Limit Value:(US CA OEL) |
| Control parameters | 15 ppm 37 mg/m3 | Short Term Exposure Limit (STEL):(US CA OEL) |
| Control parameters | 10 ppm 25 mg/m3 | Time Weighted Average (TWA):(TN 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

DNEL/DMEL values

Remarks

No substance-related safety assessment is necessary / has been conducted for this product.

PNEC values

Remarks

No substance-related safety assessment is necessary / has been conducted for this product.

8.2. Exposure controls

Engineering measures

SAFETY DATA SHEET**Jet-Ag®**

| | | | |
|---------------|---------------|---------------|-----------------|
| Material no. | | Version | 5.0 / US |
| Specification | 100343 | Revision date | 01/20/16 |
| Order Number | | Print Date | 01/20/16 |
| | | Page | 8 21 |

Ensure suitable suction/aeration at the work place and with operational machinery.
Provide for installation of emergency shower and eye bath.
see also section 7.

Personal protective equipment**Respiratory protection**

Do not inhale vapour, aerosols, mist.

If workplace exposure limit is exceeded apply Respiratory protective equipment.

wear a self contained respiratory apparatus

If necessary: Local ventilation.

A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 or applicable federal/provincial requirements must be followed whenever workplace conditions warrant respirator use. NIOSH's "Respirator Decision Logic" may be useful in determining the suitability of various types of respirators.

Note time limit for wearing respiratory protective equipment.

Hand protection

Glove material Polychloroprene (PCP), for example: Camapren 720, Kächele-Cama Latex GmbH (KCL), Germany

Material thickness 0.65 mm

Break through time > 480 min

Method DIN EN 374

disposable gloves

Glove material Natural Rubber/Natural latex (NR)

Material thickness 0.22 mm

Break through time > 480 min

Method DIN EN 374

The above mentioned hand protection is based on knowledge of the chemistry and anticipated uses of this product but it may not be appropriate for all workplaces. A hazard assessment should be conducted prior to use to ensure suitability of gloves for specific work environments and processes prior to use.

Use impermeable gloves.

Personal protective equipment that provides a barrier to prevent dermal exposure to this substance is required.

Eye protection

Use chemical splash goggles or face shield.

Skin and body protection

Wear protective clothing, acid-proof.

Suitable materials are:

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

Rubber or plastic boots

A safety shower and eye wash fountain should be readily available.

To identify additional Personal Protective Equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with the OSHA PPE Standard (29CFR1910.132) be conducted before using this product.

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.

SAFETY DATA SHEET**Jet-Ag®**

| | | | |
|---------------|---------------|---------------|-----------------|
| Material no. | | Version | 5.0 / US |
| Specification | 100343 | Revision date | 01/20/16 |
| Order Number | | Print Date | 01/20/16 |
| | | Page | 9/ 21 |

Protective measures

Handle in accordance with good industrial hygiene and safety practice.

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

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

Wear suitable protective clothing, gloves and eye/face protection.

9. Physical and chemical properties**9.1. Information on basic physical and chemical properties**

| | |
|--|---|
| physical state | liquid |
| Colour | colourless, clear |
| Form | liquid |
| Odour | stinging |
| Odour Threshold | No data available |
| 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 measureable (formation of foam) not applicable |
| Evaporation rate | No data available |
| Flammability (solid, gas) | No data available |
| Lower explosion limit | no data available |
| Upper explosion limit | no data available |
| Vapour pressure | ca. 27 hPa (20 °C) |
| Vapour density | No data available |
| Relative density | No data available |
| Density | ca. 1.12 g/cm ³ (20 °C) |
| Water solubility | completely miscible |
| Partition coefficient: n-octanol/water | log Pow: -1.25 (calculated) |
| Autoignition temperature | 395 °C Method: DIN 51 794 |

SAFETY DATA SHEET**Jet-Ag®**

| | | | |
|---------------|---------------|---------------|-----------------|
| Material no. | | Version | 5.0 / US |
| Specification | 100343 | Revision date | 01/20/16 |
| Order Number | | Print Date | 01/20/16 |
| | | Page | 10 / 21 |

Thermal decomposition ≥ 60 °C
self-accelerating decomposition

Viscosity, dynamic not determined

Viscosity, kinematic ca. 1.19 mm²/s (20 °C)
Method: DIN 51 562

9.2. Other information

Explosiveness No data available

Oxidizing properties oxidizing
Method: (according to EC Directive 67/548/EEC)

peroxides Organic peroxide type F, liquid

Surface tension ca. 53 mN/m(20 °C)
Method: ISO 3696

Bulk density not applicable

Metal corrosion Corrosive to metals

speed of hydrolysis half-life period: 48 h (25 °C) (pH 4)
Method: 92/69/EEC, C.7

half-life period: 48 h (25 °C) (pH 7)
Method: 92/69/EEC, C.7

half-life period: 3.6 h (25 °C) (pH 9)
Method: 92/69/EEC, C.7

tested substance:
peracetic acid

Other information oxidising agent

10. Stability and reactivity**10.1. Reactivity**

Risk of self-accelerating, exothermic decomposition with the development of oxygen, at, Effect of thermal energy / heat.

Product is a(n) oxidizing agent and reactive.

10.2. Chemical stability

Stable under recommended storage conditions.

Product is supplied in stabilised form.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions

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.

SAFETY DATA SHEET**Jet-Ag®**

| | | | |
|---------------|---------------|---------------|-----------------|
| Material no. | | Version | 5.0 / US |
| Specification | 100343 | Revision date | 01/20/16 |
| Order Number | | Print Date | 01/20/16 |
| | | Page | 11 / 21 |

Risk of overpressure and burst due to decomposition in confined spaces and pipes.
Release of oxygen may support combustion.

10.4. Conditions to avoid

sun rays, heat, heat effect

10.5. Incompatible materials

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.

10.6. Hazardous decomposition products

decomposition products Under conditions of thermal decomposition:
Steam, Oxygen, Acetic acid

11. Toxicological information**11.1. Information on toxicological effects**

| | |
|------------------------------------|--|
| Acute oral toxicity | Acute toxicity estimate : 500 mg/kg Method: Expert judgement |
| Acute inhalation toxicity | Acute toxicity estimate : 11 mg/l / vapour Method: Expert judgement |
| Acute dermal toxicity | Acute toxicity estimate : 1100 mg/kg Method: Expert judgement |
| Skin irritation | Extremely corrosive and destructive to tissue. |
| Eye irritation | Irreversible effects on the eye |
| Assessment of STOT single exposure | Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation. |

Toxicological information on components**Peracetic acid**

| | |
|---------------------------|---|
| Acute oral toxicity | LD50 Rat(male/female): 50 - 500 mg/kg Method: analogy OECD TG 401 Test substance: peracetic acid 35 % |
| | LD50 Rat(female): 1859 mg/kg Method: analogy OECD TG 401 Test substance: peracetic acid 5 % |
| Acute inhalation toxicity | LC50 Rat(male/female): 4.08 mg/l / 4 h / Aerosol Method: US-EPA-method Test substance: peracetic acid 5 % |
| | RD50 Mouse(male): 0.012 mg/l / 1 h / vapour Test substance: Peracetic acid 36 % |

SAFETY DATA SHEET

Jet-Ag®



| | | | |
|---------------|---------------|---------------|-----------------|
| Material no. | | Version | 5.0 / US |
| Specification | 100343 | Revision date | 01/20/16 |
| Order Number | | Print Date | 01/20/16 |
| | | Page | 12/ 21 |

| | |
|------------------------------------|--|
| | literature |
| | LC50 Rat(male): > 0.5 mg/l / 4 h / vapour |
| | Method: OECD Test Guideline 403 |
| | Test substance: Peracetic acid 36 % |
| Acute dermal toxicity | LD50 Rabbit(female): 1040 mg/kg |
| | Method: US-EPA-method |
| | Test substance: peracetic acid 5 % |
| | LD50 Rabbit(male/female): 1957 mg/kg |
| | Method: US-EPA-method |
| | Test substance: peracetic acid 12 % |
| | LD50 Rabbit(female): 1990 mg/kg |
| | Method: US-EPA-method |
| | Test substance: peracetic acid 12 % |
| | LD50 Rabbit(male): 1912 mg/kg |
| | Method: US-EPA-method |
| | Test substance: peracetic acid 12 % |
| Skin irritation | Rabbit / 4 h |
| | Corrosive |
| | Method: OECD Test Guideline 404 |
| | Test substance: peracetic acid 5 % |
| Eye irritation | Rabbit |
| | Corrosive |
| | Method: US-EPA-method |
| | Test substance: peracetic acid 17 % |
| Sensitization | Maximization test guinea pig: Does not cause skin sensitisation. |
| | Method: OECD Test Guideline 406 |
| | Test substance: peracetic acid 10 % |
| Repeated dose toxicity | Oral Rat(male/female) / 13 weeks |
| | Testing period: 92 - 93 d |
| | NOAEL: 1.17 mg/kg |
| | Method: OECD 408 |
| | Test substance: peracetic acid 100 % |
| Assessment of STOT single exposure | Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation. |
| Assessment of STOT repeat exposure | no evidence for hazardous properties |
| Risk of aspiration toxicity | Not relevant |
| Gentoxicity in vitro | Ames test Salmonella typhimurium |
| | negative |
| | Metabolic activation: with or without |
| | Method: OECD 471 |
| | Test substance: peracetic acid 5 % |

SAFETY DATA SHEET**Jet-Ag®**

| | | | |
|---------------|---------------|---------------|-----------------|
| Material no. | | Version | 5.0 / US |
| Specification | 100343 | Revision date | 01/20/16 |
| Order Number | | Print Date | 01/20/16 |
| | | Page | 13 / 21 |

HGPRT-Test Chinese hamster (V 79 -cells)

negativeMetabolic activation: **with or without**Method: **OECD 476**Test substance: **peracetic acid 11 %**

chromosomal aberration Chinese hamster (V 79 -cells)

negativeMetabolic activation: **with or without**Method: **OECD 473**Test substance: **peracetic acid 11 %**

Unscheduled DNA synthesis -test (UDS) human diploid fibroblasts

negativeMetabolic activation: **without**Method: **OECD TG 482**Test substance: **peracetic acid 42 %****literature**

Gentoxicity in vivo

Micronucleus test Mouse Oral 30 hours

negativeMethod: **OECD TG 474**Test substance: **peracetic acid 5 %**

chromosomal aberration Mouse Oral

negativeMethod: **Mutagenicity (micronucleus test)**Test substance: **peracetic acid 5 %**

Unscheduled DNA synthesis -test (UDS) Rat Oral

negativeMethod: **OECD TG 486**Test substance: **peracetic acid 5 %**

Carcinogenicity

No data available**not mutagenic**

Toxicity to reproduction

Prenatal development toxicity study Oral Rat / 14 days

NOAEL (No Observed **12.5 mg/kg**

Adverse Effect Level) of

parents:

NOAEL F1: **30.4 mg/kg**Method: **OECD TG 414**Test substance: **peracetic acid 100 %****12. Ecological information****12.1. Toxicity**

Toxicity to fish

LC50 Oncorhynchus mykiss: **0.53 mg/l / 96 h**Test substance: **peracetic acid 100 %**Method: **OECD TG 203**

Toxicity in aquatic

EC50 static test Daphnia magna: **0.73 mg/l / 48 h**

SAFETY DATA SHEET**Jet-Ag®**

| | | | |
|---------------|---------------|---------------|-----------------|
| Material no. | | Version | 5.0 / US |
| Specification | 100343 | Revision date | 01/20/16 |
| Order Number | | Print Date | 01/20/16 |
| | | Page | 14 / 21 |

| | |
|-----------------------------|---|
| invertebrates | Test substance: peracetic acid 100 % Method: OECD Test Guideline 202 |
| Toxicity to algae | EC50 static test Pseudokirchneriella subcapitata (aglae): 0.16 mg/l / 72 h End point: growth rate Test substance: peracetic acid 100 % Method: US-EPA-method NOEC static test Pseudokirchneriella subcapitata (aglae): 0.061 mg/l / 72 h End point: growth rate Test substance: peracetic acid 100 % Method: US-EPA-method |
| Toxicity to bacteria | EC50 static test Activated sludge: 38.6 mg/l / 3 h Test substance: peracetic acid 100 % Method: OECD 209 EC50 static test Activated sludge: 5.1 mg/l / 3 h Test substance: peracetic acid 100 % Method: OECD 209 |
| chronic toxicity in fish | NOEC flow-through test Danio rerio: 0.00094 mg/l / 33 d Test substance: peracetic acid 100 % Method: OECD TG 210 |
| chronic toxicity in daphnia | NOEC semi-static test Daphnia magna: 0.05 mg/l / 21 d Test substance: peracetic acid 100 % Method: OECD 211 |

12.2. Persistence and degradability

Biodegradability **aerobic**
inoculum: activated sludge
Exposure time: 28 d
Result: 98 % Readily biodegradable.
Test substance: peracetic acid 40 %
Method: OECD TG 301 E
At non-bacteriotoxic concentrations

aerobic
inoculum: activated sludge
Exposure time: 3 min
Result: 100 % Totally biodegradable
Test substance: peracetic acid 40 %
Method: OECD TG 209

AOX The product does not contain any organically bonded halogen.

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

SAFETY DATA SHEET**Jet-Ag®**

| | | | |
|---------------|---------------|---------------|-----------------|
| Material no. | | Version | 5.0 / US |
| Specification | 100343 | Revision date | 01/20/16 |
| Order Number | | Print Date | 01/20/16 |
| | | Page | 15 / 21 |

12.3. Bioaccumulative potential

Bioaccumulation low
log Pow: see chapter 9

12.4. Mobility in soil

Mobility No data available

12.5. Other adverse effects

Further Information Does not contain any heavy metals and compounds from EC directive 76/464

e.g. arsenic-, lead
cadmium
Mercury
organic halogen compounds
organic compounds

Ecotoxicology Assessment

Acute aquatic toxicity Toxic to aquatic life.
Chronic aquatic toxicity Very toxic to aquatic life with long lasting effects.

13. Disposal considerations**13.1. Waste treatment methods****Product**

Waste must be disposed of in accordance with local, state, provincial and federal laws and regulations. Empty containers must be handled with care due to product residue.

Uncleaned packaging

Rinse empty containers before disposal; recommended cleaning agent: water.
Offer rinsed packaging material to local recycling facilities.

14. Transport information**D.O.T. Road/Rail**

- 14.1. UN number: UN 3149
14.2. UN proper shipping name: Hydrogen peroxide and peroxyacetic acid mixtures, stabilized
14.3. Transport hazard class(es): 5.1 (8)
14.4. Packing group: II
14.5. Environmental hazards --
(Marine pollutant):
14.6. Special precautions for user: Yes
ROAD: FOR USA ONLY: When shipping in, by or via USA note of the Reportable Quantity-
(CFR) Regulation!
RAIL: FOR USA ONLY: When shipping in, by or via USA note of the Reportable Quantity-
(CFR) Regulation!
Protect from thermal radiation.

SAFETY DATA SHEET**Jet-Ag®**

| | | | |
|---------------|---------------|---------------|-----------------|
| Material no. | | Version | 5.0 / US |
| Specification | 100343 | Revision date | 01/20/16 |
| Order Number | | Print Date | 01/20/16 |
| | | Page | 16 / 21 |

**Air transport ICAO-TI/IATA-DGR**

- 14.1. UN number: UN 3149
14.2. UN proper shipping name: Hydrogen peroxide and peroxyacetic acid mixture, stabilized
14.3. Transport hazard class(es): 5.1 (8)
14.4. Packing group: II
14.5. Environmental hazards: --
14.6. Special precautions for user: Yes
IATA-C: FOR USA ONLY: When shipping in, by or via USA note of the Reportable Quantity-Regulation!
IATA-P: FOR USA ONLY: When shipping in, by or via USA note of the Reportable Quantity-Regulation!
Protect from thermal radiation.

Sea transport IMDG-Code/GGVSee (Germany)

- 14.1. UN number: UN 3149
14.2. UN proper shipping name: HYDROGEN PEROXIDE AND PEROXYACETIC ACID MIXTURE, STABILIZED
14.3. Transport hazard class(es): 5.1 (8)
14.4. Packing group: II
14.5. Environmental hazards (Marine pollutant): --
14.6. Special precautions for user: Yes
EmS: F-H,S-Q
Protect from heat. Separate from metal powders and permanganates.
"Separated from" permanganates and class 4.1.
FOR USA ONLY: When shipping in, by or via USA note of the Reportable Quantity-Regulation!
Protect from thermal radiation.
- 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: for transport approval see regulatory information

15. Regulatory information**US Federal Regulations****FIFRA**

This chemical may be used as a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

Hazards to Humans and Domestic Animals:

DANGER
CORROSIVE
CAUSES IRREVERESIBLE EYE DAMAGE AND SKIN BURNS.
MAY BE FATAL IF INHALED OR ABSORBED THROUGH THE SKIN.
HARMFUL IF SWALLOWED

Physical and Chemical Hazards:
STRONG OXIDIZING AGENT

Environmental Hazards:
THIS PESTICIDE IS TOXIC TO BIRDS, FISH, AND AQUATIC INVERTEBRATES.

SAFETY DATA SHEET

Jet-Ag®

| | | | |
|---------------|---------------|---------------|-----------------|
| Material no. | | Version | 5.0 / US |
| Specification | 100343 | Revision date | 01/20/16 |
| Order Number | | Print Date | 01/20/16 |
| | | Page | 17 / 21 |



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:

- Peracetic acid
CAS-No. 79-21-0

Toxic Substances Control Act (TSCA)

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

- None listed

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 the Product Regulatory Services Department.

SAFETY DATA SHEET**Jet-Ag®**

| | | | |
|---------------|---------------|---------------|-----------------|
| Material no. | | Version | 5.0 / US |
| Specification | 100343 | Revision date | 01/20/16 |
| Order Number | | Print Date | 01/20/16 |
| | | Page | 18/ 21 |

| | |
|------------------------|---|
| Europe (EINECS/ELINCS) | listed/registered all ingredients listed |
| USA (TSCA) | listed/registered all ingredients listed |
| Canada (DSL) | listed/registered all ingredients listed |
| Philippines (PICCS) | listed/registered all ingredients listed |
| New Zealand | listed/registered all ingredients listed |
| Korea | listed/registered all ingredients listed |
| China | listed/registered all ingredients listed |
| Australia (AICS) | listed/registered all ingredients listed |
| Japan (MITI) | listed/registered all ingredients listed |

An employer using HMIS/NFPA labeling must through training ensure that its employees are fully aware of the hazards of the chemicals used.

HMIS Ratings

| | |
|-------------------|---|
| Health : | 3 |
| Flammability : | 1 |
| Physical Hazard : | 2 |

NFPA Ratings

| | |
|----------------|---|
| Health : | 3 |
| Flammability : | 1 |
| Reactivity : | 2 |

16. Other information**Further information**

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

Revision date 01/20/16

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

SAFETY DATA SHEET**Jet-Ag®**

| | | | |
|---------------|---------------|---------------|-----------------|
| Material no. | | Version | 5.0 / US |
| Specification | 100343 | Revision date | 01/20/16 |
| Order Number | | Print Date | 01/20/16 |
| | | Page | 19 / 21 |

This information and any recommendations, technical or otherwise, are presented in good faith and believed to be correct as of the date prepared. Recipients of this information and recommendations must make their own determination as to its suitability for their purposes. In no event shall Jet Harvest Solutions assume liability for damages or losses of any kind or nature that result from the use of or reliance upon this information and recommendations. JET HARVEST SOLUTIONS EXPRESSLY DISCLAIMS ANY REPRESENTATIONS AND WARRANTIES OF ANY KIND, WHETHER EXPRESS OR IMPLIED, AS TO THE ACCURACY, COMPLETENESS, NON-INFRINGEMENT, MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR PURPOSE (EVEN IF JET HARVEST SOLUTIONS IS AWARE OF SUCH PURPOSE) WITH RESPECT TO ANY INFORMATION AND RECOMMENDATIONS PROVIDED. Reference to any trade names used by other companies is neither a recommendation nor an endorsement of the corresponding product, and does not imply that similar products could not be used. Jet Harvest Solutions reserves the right to make any changes to the information and/or recommendations at any time, without prior or subsequent notice.

SAFETY DATA SHEET**Jet-Ag®**

| | | | |
|---------------|---------------|---------------|-----------------|
| Material no. | | Version | 5.0 / US |
| Specification | 100343 | Revision date | 01/20/16 |
| Order Number | | Print Date | 01/20/16 |
| | | Page | 20 / 21 |

Legend

| | |
|----------------|---|
| ACC | American Chemistry Council |
| ACGIH | American Conference of Governmental Industrial Hygienists |
| ACS | Advisory Committee on Sustainability |
| ADI | Acceptable Daily Intake |
| ASTM | American Society for Testing and Materials |
| ATP | Adaptation to Technical Progress |
| BCF | Bioconcentration factor |
| BOD | Biochemical oxygen demand |
| c.c. | closed cup |
| CAO | Cargo Aircraft Only |
| Carc | Carcinogen |
| CAS | Chemical Abstract Services |
| CDN | Canada |
| CEPA | Canadian Environmental Protection Act |
| CERCLA | Comprehensive Environmental Response – Compensation and Liability Act |
| CFR | Code of Federal Regulations |
| CMR | carcinogenic-mutagenic-toxic for reproduction |
| COD | Chemical oxygen demand |
| DIN | German Institute for Standardization |
| DMEL | Derived minimum effect level |
| DNEL | Derived no effect level |
| DOT | Department of Transportation |
| EC50 | half maximal effective concentration |
| EPA | Environmental Protection Agency |
| ErC50 | Reduction of Growth Rate |
| ERG | Emergency Response Guide Book |
| FDA | Food and Drug Administration |
| GHS | Globally Harmonized System of Classification and Labelling of Chemicals (GHS) |
| GLP | Good Laboratory Practice |
| GMO | Genetic Modified Organism |
| HCS | Hazard Communication Standard |
| HMIS | Hazardous Materials Identification System |
| IARC | International Agency for Research on Cancer |
| IATA | International Air Transport Association |
| IBC | Intermediate Bulk Container |
| ICAO-TI | International Civil Aviation Organization- Technical Instructions |
| ICCA | International Council of Chemical Association |
| ID | Identification number |
| IMDG | International Maritime Dangerous Goods |
| IUPAC | International Union of Pure and Applied Chemistry |
| ISO | International Organization For Standardization |
| LC50 | 50 % Lethal Concentration |
| LD50 | 50 % Lethal Dose |
| L(E)C50 | LC50 or EC50 |
| LOAEL | Lowest observed adverse effect level |
| LOEL | Lowest observed effect level |
| MARPOL | International Convention for the Prevention of Pollution from Ships |
| NFPA | National Fire Protection Association |
| NOAEL | No observed adverse effect level |
| NOEC | no observed effect concentration |
| NOEL | no observed effect level |
| o. c. | open cup |
| OECD | Organisation for Economic Cooperation and Development |
| OEL | Occupational Exposure Limit |
| OSHA | Occupational Safety and Health Administration |
| PBT | Persistent, bioaccumulative, toxic |
| PEC | Predicted effect concentration |
| PNEC | Predicted no effect concentration |
| RQ | Reportable Quantity |
| SDS | Safety Data Sheet |
| STOT | Specific Target Organ Toxicity |
| UN | United Nations |
| vPvB | very persistent, very bioaccumulative |

SAFETY DATA SHEET

Jet-Ag®



| | | | |
|---------------|---------------|---------------|-----------------|
| Material no. | | Version | 5.0 / US |
| Specification | 100343 | Revision date | 01/20/16 |
| Order Number | | Print Date | 01/20/16 |
| | | Page | 21 / 21 |

voc volatile organic compounds
WHMIS Workplace Hazardous Materials Information System
WHO World Health Organization