

SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **JET-AG[®] 5**

REGISTRATION NO: 84059-32

MANUFACTURER: Marrone Bio Innovations

ADDRESS: 1540 Drew Ave., Davis CA, 95618

**EMERGENCY PHONE: INFOTRAC Chemical Response System
US and Canada 1-800-535-5053 (24 hours)
International 1-352-323-3500 (24 hours)**

OTHER CALLS: Marrone Bio Innovations 530-750-2800 (9am to 5 pm PST)

FAX PHONE: Marrone Bio Innovations 530-750-2808

PRODUCT USE: Fungicide, bactericide, and algacide for agricultural uses

SECTION 2: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

May intensify fire; oxidizer
 May be corrosive to metals
 Harmful if swallowed, in contact with skin or if inhaled
 Causes severe skin burns and eye damage.
 May cause respiratory irritation

HAZARD SYMBOLS:

Pictogram



Signal Word

Danger

HEALTH HAZARD STATEMENTS

H272 May intensify fire; oxidizer
 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 STATEMENTS

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P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P220	Keep/Store away from clothing/ combustible materials.
P221	Take any precaution to avoid mixing with combustibles
P234	Keep only in original packaging.
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.
P310	Immediately call a POISON CENTER or doctor/ physician
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
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.
P370 + P378	In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.
P390	Absorb spillage to prevent material damage.
P391	Collect spillage.
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.
P501	Dispose of contents/ container to an approved waste disposal plant.

POTENTIAL ROUTES OF ENTRY: Oral, eye, and inhalation.

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

CARCINOGENICITY:

OSHA: Not listed

ACGIH: Not listed

NTP: Not listed.

IARC: Not listed

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS
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Synonym: Jet-Ag

<u>ACTIVE INGREDIENTS:</u>	<u>CAS NO:</u>	<u>% WT:</u>	<u>EXPOSURE LIMITS:</u>
Hydrogen Peroxide	7722-84-1	25	1 ppm Permissible exposure limit:(OSHA Z1)
Peroxyacetic Acid	79-21-0	5	0.4 ppm Short Term Exposure Limit (STEL):(ACGIH)

OTHER INGREDIENTS:

Acetic acid	64-19-7	8	10 ppm Permissible exposure limit:(OSHA Z1)
Inert, non-reactive, 3.5 %	multiple	balance	

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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.

SECTION 5: FIRE-FIGHTING MEASURES**FLAMMABLE LIMITS IN AIR, (% BY VOLUME)**

UPPER: Not applicable.

LOWER: Not applicable.

AUTOIGNITION TEMPERATURE: Not applicable.

EXTINGUISHING MEDIA: Use Foam, Carbon Dioxide, Dry powder or Water spray.

SPECIAL FIRE FIGHTING PROCEDURES:

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).

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.

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UNUSUAL FIRE AND EXPLOSION HAZARDS: None

HAZARDOUS DECOMPOSITION PRODUCTS: Under conditions of thermal decomposition: Steam, Oxygen, Acetic acid

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Product causes chemical burns. Evacuate personnel to safe areas. Keep out unprotected persons. Keep unauthorized persons away. Wear personal protective equipment

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.

Methods and material for containment and cleaning up: Keep away from incompatible substances. Keep away from flammable substances. Clean contaminated surface thoroughly. Recommended cleaning agent: water. Dispose of absorbed material in accordance with the regulations. With small amounts: Dilute product with lots of water and rinse away. 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.).

SECTION 7: HANDLING AND STORAGE

HANDLING:

Avoid contact with skin, eyes and clothing.

Do not breathe in vapors, 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.

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Set up safety and operation procedures.

STORAGE:

Avoid sun rays, heat, heat effect.

Keep away from sources of ignition - No smoking.

Keep away from flammable substances.

Keep away from incompatible substances.

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.

Cool, well ventilated, clean, lockable storage.

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.

For transport, storage and tank installations only use suitable materials: stainless steel (1.4571), polyethylene, polypropylene, polyvinyl chloride (PVC), polytetrafluoroethylene, glass, ceramics.

Unsuitable materials: Mild steel, Iron, Copper, brass, Bronze, Aluminum, zinc

OTHER PRECAUTIONS:

Avoid sun rays, heat, heat effect.

Avoid impurities

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.

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

Do not store together with inflammable substances (risk of fire)

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Ensure suitable suction/aeration at the workplace and with operational machinery. Provide for installation of emergency shower and eye bath.

VENTILATION: No TLV assigned. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and aerosols below the exposure levels. Ensure that eyewash stations and safety showers are proximal to the work-station location.

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RESPIRATORY PROTECTION: Do not inhale vapor, 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.

EYE PROTECTION:

Use chemical splash goggles or face shield.

SKIN 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.

Wear protective clothing, acid-proof. Suitable materials are: PVC, neoprene, nitrile rubber (NBR), rubber. Rubber or plastic boots

OTHER PROTECTIVE CLOTHING OR EQUIPMENT:

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.

WORK HYGIENIC PRACTICES:

Avoid contact with skin, eyes and clothing.

Do not inhale vapor, 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.

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Any contaminated protective equipment is to be cleaned after use.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE:	Liquid
COLOR:	Clear, colorless
ODOR:	Stinging
pH:	0.6
DENSITY:	No data available
SOLUBILITY IN WATER:	1.12 g/cm ³
BOILING POINT/RANGE:	>60 °C, not applicable when decomposed
FREEZING/MELTING POINT:	(-28) °C
FLASH POINT:	Not measurable
EVAPORATION RATE:	No data available
FLAMMABILITY (SOLID. GAS):	No data available
UPPER FLAMMABILITY LIMITS:	Not determined
LOWER FLAMMABILITY LIMITS:	Not determined
VAPOR PRESSURE:	27 hPA (20 °C)
VAPOR DENSITY:	Not determined
RELATIVE DENSITY:	Not determined
SOLUBILITY IN OTHER SOLVENTS:	Not determined
PARTITION COEFFICIENT:	Not determined
AUTOIGNITION TEMPERATURE:	Not applicable
DECOMPOSITION TEMPERATURE:	Not determined
KINEMATIC VISCOSITY:	Not determined
DYNAMIC VISCOSITY:	Not determined
EXPLOSIVE PROPERTIES:	Not applicable
OXIDIZING PROPERTIES:	Not applicable

SECTION 10: STABILITY AND REACTIVITY

Stable under recommended storage conditions.

Product is supplied in stabilized form.

OXIDIZING LIQUID

CORROSIVE TO METALS

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Under conditions of thermal decomposition: Steam, Oxygen, Acetic acid

HAZARDOUS POLYMERIZATION: Not known to occur

CONDITIONS TO AVOID : sun rays, heat, heat effect

INCOMPATIBLE MATERIALS:

Impurities, decomposition catalysts, metal salts, alkalis, reducing substances, metals, nonferrous heavy metal, aluminum, zinc., Possible hazardous reaction: decomposition.

Flammable materials, Possible hazardous reaction: Spontaneous ignition. organic solvents, Possible hazardous

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reaction: Danger of explosion

SECTION 11: TOXICOLOGICAL INFORMATION

ACUTE ORAL TOXICITY LD50:	500 mg/kg. Category 4.
ACUTE DERMAL TOXICITY LD50:	1100 mg/kg. Category 4.
ACUTE INHALATION LC50:	11 mg/L (vapor). Category 4.
EYE IRRITATION:	Category 1.
SKIN IRRITATION:	Category 1A.
SPECIFIC TARGET ORGAN TOXICITY – SINGLE EXPOSURE (RESPIRATORY SYSTEM)	Category 3
SKIN SENSITIZATION:	No data available.

SECTION 12: ECOLOGICAL INFORMATION

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

Bioconcentration potential: This material has low bioaccumulation potential.

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high-water mark. Do not contaminate water when disposing of equipment wash water or rinsate.

Do not allow to drift from the manufacturing site and contact people, structures people occupy at any time and the associated property, parks and recreation areas, non-target crops, aquatic and wetland areas, woodlands, pastures, rangelands, or animals. Minimize drift away from the manufacturing site.

SECTION 13: DISPOSAL CONSIDERATIONS

Do not reuse containers. Dispose of in accordance with all applicable local, regional, national, and international regulations.

SECTION 14: TRANSPORTATION INFORMATION

U.S. DOT:

UN number:	UN 3149
UN proper shipping name:	Hydrogen peroxide and peroxyacetic acid mixtures, stabilized
Transport hazard class(es):	5.1 (8)
Packing group:	II
Environmental hazards:	Yes (Marine pollutant)
Special precautions for user:	Yes

ROAD: FOR USA ONLY: When shipping in, by or via USA note the Reportable Quantity

RAIL: FOR USA ONLY: When shipping in, by or via USA note the Reportable Quantity

Protect from thermal radiation.

SAFETY DATA SHEET**IATA DGR:**

UN number: UN 3149
UN proper shipping name: Hydrogen peroxide and peroxyacetic acid mixtures, stabilized
Transport hazard class(es): 5.1 (8)
Packing group: II
Environmental hazards: --
Special precautions for user: Yes

ROAD: FOR USA ONLY: When shipping in, by or via USA note the Reportable Quantity

RAIL: FOR USA ONLY: When shipping in, by or via USA note the Reportable Quantity

Protect from thermal radiation.

IMDG:

UN number: UN 3149
UN proper shipping name: Hydrogen peroxide and peroxyacetic acid mixtures, stabilized
Transport hazard class(es): 5.1 (8)
Packing group: II
Environmental hazards: Yes (Marine pollutant)
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 the Reportable Quantity

Protect from thermal radiation.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Freight Classification: Fungicide. See NMFTA code.

SECTION 15: REGULATORY INFORMATION**INTERNATIONAL REGULATIONS**

TSCA: None listed

U.S. FEDERAL REGULATIONS

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

SARA TITLE III HAZARD CLASSIFICATION SECTIONS 311 AND 312:

Immediate (acute) Health: Acute Health Hazard
Delayed (chronic) Health: None
Fire: None
Sudden Release of Pressure: None
Reactivity: None

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SARA 313: Peracetic acid
CAS-No. 79-21-0

U.S. STATE REGULATIONS: None

US STATE RIGHT-TO-KNOW REGULATIONS: None

SECTION 16: OTHER INFORMATION**SPECIAL HAZARDS:**

HMIS Ratings

Health : 3 Flammability : 1 Physical Hazard : 2

NFPA Ratings

Health : 3 Flammability : 1 Reactivity : 2

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