NICHEM

Agro

MSDS

MicroShield

Eco-friendly, Multi-purpose Biocide

(Date Issued: 01.04.14)

1. IDENTIFICATION OF THE PREPARATION	
Product Name	MICROSHIELD SPRAY
Application	Used to control bacterial, fungal & viral attack on plants
Company Identification	NICHEM SOLUTIONS Plot No.A-387, Rd.No.28,Ramnagar, Wagle Estate,Thane(W)–400604. Maharashtra, INDIA.
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2. COMPOSITION OF INGREDIENTS		
Contents	**Hydrogen Peroxide**	**Silver**
CAS-Nr. Designation	7722-84-1	7440-22-4
EC Number	231-765-0	----------
	US-EPA-Federal register, June 21, 1999 (Vol.64, No.118)	----------
Silver MCL Clearance	----------	EU Water Standard 1998/93 EEC UK Approval Under Regulators 31 of Water Supply Regulations 2000
Description	Aqueous solution of hydrogen peroxide	Colloidal particles of Silver
Chemical Formula	H_2O_2	Ag
Molecular Weight(MW)/ Atomic Weight(AW)	MW = 34.02	AW = 107.868
HS CODE	38089390	

3. HAZARD IDENTIFICATION

Description of dangers: Causes burns, Irritating to respiratory system.

Special guidelines concerning dangers to humans and the environment:

- Product is an oxidizing agent.
- Danger of decomposition when exposed to heat.
- Risk of decomposition in contact with incompatible substances, e.g. Metals, metal ions, alkalis, reducing agents.
- Danger of explosion with organic solvents. (See also section 10).

4. FIRST AID MEASURES

General information: Bring affected persons out of danger area. Observe self-protection (body protection, eye protection, respiratory protection).

After inhalation: Take affected persons out into the fresh air. Keep patient half sitting with upper body raised. Keep warm in a comfortable position and cover with blanket. In case of

breathing difficulties supply oxygen. Employ mouth-to-mouth resuscitation if breathing ceases. Consult doctor immediately.

After skin contact: On skin contact, rinse thoroughly with water. Remove contaminated or saturated clothing immediately. If irritation persists, supply with medical care immediately. Keep warm in a comfortable position and cover with blanket. Wash contaminated clothing immediately with water

After eye contact: With eye held open, thoroughly rinse immediately with plenty of water for at last 15 minutes. Remove contact lenses if easily possible. Further treatment by eye doctor/eye hospital.

After swallowing: Have patient rinse out mouth with water. Have patient drink plenty of water in small sips (for dilution). Do not force patient to vomit. Consult doctor immediately. Keep warm in a comfortable position and cover with blanket.

5. FIRE FIGHTING MEASURES

Suitable extinguishing agents: Water, Water Spray

Unsuitable extinguishing agents: N.A.

Particular danger caused by material, its combustion products or gases produced:

- Non-flammable.
- Involved in fire, it may decompose yielding oxygen.
- Release of oxygen supports combustion.
- Risk of overpressure and burst due to decomposition in confined spaces.
- In case of fire, cool the containers that are at risk with water or dilute with water (flooding).

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

6. ACCIDENTAL RELEASE MEASURES

Person-related safety precautions: Wear personal protective equipment; see section 8. Bring persons in safety. Keep unprotected persons at a distance.

Measures for environmental protection: Observe regulation on prevention of water pollution (collect, damp up, cover up). Collect, damp up product with sand or earth. Do not use combustible substances, saw dust, cloth. Keep hydrogen peroxide away from incompatible substances; see section 10.

Measures for cleaning/collecting: Do not permit to enter drainage systems, stretches of water, soil undiluted; see also section 13.

Additional information: Never return split product to original container for recycling purposes (Risk of decomposition).

7. HANDLING AND STORAGE

HANDLING:

Information for safe handling:

- The usual precautionary measures for dealing with chemicals should be observed.
- Protect from impurities and heat effect. Never return spilt product to original container for recycling purposes. (Risk of decomposition). Wear personal protective equipment; see section 8. Avoid contact with skin, eyes and clothing. Do not inhale vapor and aerosol/mist. Ensure there is good room ventilation.
- Provide for installation of emergency shower and eye birth. Change work clothes that have been moistened or saturated with product. Wash contaminated clothing immediately with water.

Information about protection against explosions and fires:

- Protect from sun rays, heat, heat effect. Keep away from incompatible substances; see section 10.

STORAGE CONDITION:

Requirement to be met by storerooms and containers:

- Only use containers, which are suitable for hydrogen peroxide. For transport, storage and tank installation only use suitable material. Suitable materials are:- specific stainless steel (E.g. 1.4571), pure aluminium (at least 99.5%, quality), certain aluminium magnesium alloys, polyethylene material (HDPE). Use adequate venting devices on all packages, containers and tanks and check correct operation periodically. Do not allow pressure build up
- Do not confine product in unvented vessels or between closed valves. Risk of overpressure and bursting due to decomposition in confined spaces exists.
- Always close container tightly after removal of product. Ensure tightness at all times.

Information about storage in one common storage facility:

- Do not store together with: alkalis, reducing agents, metallic salts, and combustible substances.

Further information about storage conditions:

- Bulk storage of hydrogen peroxide should include at least compatible materials, adequate separation, adequate venting area, venting devices, temperature measurement, earthing (grounding), bound in case of leakage. For further and detailed information on design specifications, ask the product for advice.
- Prior to the first filling and operation of a tank installation, all parts of the facility including all pipes must be thoroughly cleaned and flushed through. Metal elements of the installation must first be picked and passivated sufficiently. Set up safety and operations procedures. Regularly verify the availability of water to deal with emergencies (for cooling, tank flooding, and fire) and check correct operation periodically.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Additional information about design of technical systems:

- Ensure suitable suction/aeration at the work place and with operational machinery.
- Components with limit values that require monitoring at the workplace:

CAS-Number	Designation of Material %	Type	Value Unit
7722-84-1	Hydrogen peroxide	MAK (D)	1 ml/m^{3}1,4 mg/m^3
		MAK (GB)	1 ml/m^{3}1,4 mg/m^3
		MAK (USA)	1 ml/m^{3}1,4 mg/m^3

General protective and hygienic measures

The usual precautionary measures for dealing with chemical should be observed. Wear suitable protective clothing, gloves and eye/face protection. Avoid contact with skin, eyes and clothing. Ensure there is good room ventilation. If workplace exposure limit is exceeded and/or larger amounts are released (leakage, spilling, etc.), the indicated respiratory protection should be used.

Breathing equipment:

Do not inhale vapor and aerosols/mist. If workplace exposure limit is exceeded, apply respirator with grey B-type filter or respiratory protective equipment independent of surrounding air (Concerning filter type recommendations: German legislation).

Protection of hands:

Wear protective gloves made of PVC, neoprene or natural rubber. Avoid protective gloves made of cotton or leather (Risk of spontaneous ignition)

Eye protection: Wear basket-shaped glasses or eye protectors with protective screen.

Body protection:

- Wear flame-retarding protective clothing. Suitable materials are: PVC, neoprene, nitrile rubber, natural rubber.

- Wear rubber or plastics boots. Avoid footwear, protective clothing and protective gloves made of cotton or leather. (Risk of spontaneous ignition)
- Avoid contaminating clothes with product. Change work clothes that have been moistened or saturated with product. Wash contaminated clothing immediately with water. All protective equipment that is contaminated should be cleaned before reuse..

9. PHYSICAL & CHEMICAL PROPERTIES	
Physical Properties	
Form	Liquid
Colour	Colorless
Odor	Odorless
Chemical Properties	
Base	Mixture of microsilver & hydrogen peroxide
Specific Gravity	1.01 to 1.02 kg/lit
pH	2 to 3
Viscosity(Ford Cup4)	15.0 sec ± 5 sec
Melting Temp.	52 deg C
Boiling Temp	114 deg C
Solubility	Completely miscible in water in all proportions
Stability	Stability at ambient temperature under normal conditions of use

10. STABILITY AND REACTIVITY

Material to be avoided:
Product is an oxidizing agent and reactive.
Stable at room temperature.
Danger of decomposition when exposed to heat, metals and metal salts.
Mixtures with combustible material (e.g. solvent) can have explosive properties (above a certain concentration)
Conditions to be avoided: sun rays, heat, heat effect.
Substances to be avoided:
Impurities, metal ions, metallic salts, metals.
Alkalis, hydrochloric acid, reducing agents, combustible substances, solvents.
Dangerous products of decomposition:
Steam and oxygen.
Risk of overpressure and burst due to decomposition in confined spaces including pipes.
Release of oxygen supports combustion.
Additional information: Formulated products are considerably diluted and are stabilized to reduce risk of decomposition due to contamination.

11. TOXICOLOGICAL INFORMATION

Acute toxicity:
LD/LC_{50} values those are relevant for classification:

Components	Type	Value	Species
	(LC_{50} 9rat, 4 h):	>2000 mg/kg	TNO-Report V 93.311

Primary irritant effect:
On the skin: caustic, rabbit, no OECD method.
On the eye: highly irrigative, rabbit, no OCECD method.
Sensitization: No sensitizing, guinea pig, maximization test, OECD Method.
Other information (about experimental toxicology):
Mutagenic potential: in vitro: without metabolic mechanism (activation) mutagenic effects have been observed; with metabolic mechanism (activation) not mutagenic. In vitro, oral; negative (there are no effects being observed).
Sub acute to chronic toxicity:
Reproduction effects/Teratogenic studies on various species: Have not been demonstrated.

Cancerogenicity:

- Clues to possible carcinogenic effects in animal experiments, various species: None
- Hydrogen peroxide is not listed as carcinogen by MAK, IARC, NTP, OSHA< ACGIH.
- **Experience with humans:**

Effect on skin: Causes burns. The effects, that increase with the duration of exposure, can be severe irritation (white coloration), reddening or even blistering (burning).
Effect on eyes: May cause severe conjunctivitis, cornea injury or irreversible damage to the eyes. Symptoms may occur with delay.
Effect of ingestion: Swallowing may lead to burning necrosis of the mucous membranes of mouth, esophagus and stomach. Rapid liberation of oxygen may cause gastric distension and bleeding and may lead to severe damage to the internal organs, especially if a large amount has been swallowed.
Effect of Inhalation: Inhalation of vapors/aerosols may lead to severe of the respiratory tract and may cause inflammation and pulmonary. Symptoms may occur with delay.

12. ECOLOGICAL INFORMATION

Information about elimination (persistence and degradability):
Rapid decomposition into oxygen and water.
Medium: water, soil.
Behavior in environmental systems:
Components:
1. Water/Soil: Hydrogen peroxide is generally regarded as not endangering water courses. In the environment it readily degrades forming oxygen and water, generally exerting no significant adverse effects on the environment.
2. Air: No limits to industrial emissions have been set up.
3. Mobility and bioaccumulation potential: Bioaccumulation: Decomposition, Reduction in oxygen and water
4. Behavior in sewage processing plants: Rapid decomposition into oxygen and water
5. Eco-toxical effects:
Additional ecological information: According to recipe contains the following heavy metals and compounds according to EC guideline No. 76/464 EC: none.

13. DISPOSAL CONSIDERATIONS

Recommendation: Product
Cannot be disposed off in the environment. Decompose with ferrous sulfate, dilute with water before discharging in drainage. Local legal regulations and permission by the responsible local legal authority are required for safe disposal of the product. Please comply with them.
Unclean packaging:
Rinse empty containers with water prior to disposal. Take decontaminated packaging to local recycling centre.

14. TRANSPORT INFORMATION

Land transport ADR/RID (cross border)

ADR/RID-GGVS/E Class:	5.1
Number/Letter:	1 b
Kemler-Number:	58
UN-Number:	2014
Designation of goods:	Hydrogen peroxide, aqueous solution (concentration <50% Fortified).

Maritime transport IMDG

IMDG/GGVSea:	5.1
UN-Number:	2014
Packing group:	PG. II

Ems-Number:	5.1-02
MFAG-Number:	735
Marine pollutant:	no
Correct technical name:	Hydrogen peroxide, aqueous solution

Remarks: Protect from heat. Keep separate from powered metals, permanganates, class 4.1.

Air transport ICAO-TI und IATA-DGR:

ICA/IATA Class:	prohibited
Correct technical name:	Hydrogen peroxide, aqueous solution.
	Keep separate from food, semi luxuries and feed.

Transport/Additional information: Dangerous according to the transport regulations GGVS/GGVE/RID.ADR/IMDG Code/ICAO-TI: Yes

15. REGULATORY INFORMATION

Labeling of substances in line with EC Directive 67/546/EEC and amendment.

Risk phrases:

R34 – Causes burns

R36 – Irritating to eyes

Safety phrases:

S2	- Keep out of reach of children
S7	- Keep container tightly closed
S26	- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S28	- After contact with skin, wash immediately with plenty of water
S36/37/39	- Wear suitable protective clothing, gloves, eye/face protection
S45/46	- If swallowed or in case of accident or if you feel unwell, seek medical advice immediately

16. OTHER INFORMATION

Disclaimer: NICHEM SOLUTIONS has internally & externally verified the effectiveness & efficacy of its products by a standard protocol. We expect to reproduce the same results at customer's end by adopting same protocol. We take responsibility for the uniform quality of our products. However, NICHEM SOLUTIONS will not be responsible for any consequential liability of any nature for whatsoever reason.