Section 1 - Identification of The Material and Supplier

Adama Australia Pty Ltd,
Level 1, Building B
207 Pacific Highway St Leonards, NSW 2065
ACN 050 328 973

Telephone (02) 9431 7800 (office hours)
Emergency 1800 024 973 (24 hours)
Fax (02) 9431 7700

Chemical nature: Acrolein is an aldehyde.

Trade Name: **Magnacide H Herbicide**

APVMA Number: 45654

Product Use: Agricultural herbicide for use as described on the product label.

Creation Date: **March, 2011**

This version issued: **November, 2019** and is valid for 5 years from this date.

Poisons Information Centre: Phone 13 1126 from anywhere in Australia

Section 2 - Hazards Identification

Statement of Hazardous Nature

This product is classified as: T, Toxic. N, Dangerous to the environment. C, Corrosive. F+, Highly Flammable. Hazardous according to the criteria of SWA.

Dangerous according to Australian Dangerous Goods (ADG) Code, IATA and IMDG/IMSBC criteria.

SUSMP Classification: S7
ADG Classification: Class 6.1: Toxic substances. Sub Risk: Class 3: Flammable liquids.
UN Number: 1092, ACROLEIN, STABILIZED

GHS Signal word: DANGER

Flammable liquids Category 2
Acute Toxicity Oral Category 2
Acute Toxicity Dermal Category 3
Skin Corrosion /Irritation Category 1B
Skin Sensitisation Category 1
Acute Toxicity Inhalation Category 1
Specific Target Organ Toxicity - Single Exposure Category 3
Hazardous to aquatic environment Short term/Acute Category 1

HAZARD STATEMENT:

H225: Highly flammable liquid and vapour.
H300 + H330: Fatal if swallowed or if inhaled.
H311: Toxic in contact with skin.
H314: Causes severe skin burns and eye damage.
H335: May cause respiratory irritation.
H410: Very toxic to aquatic life with long lasting effects.

PREVENTION

P103: Read label before use.
P102: Keep out of reach of children.
P101: If medical advice is needed, have product container or label at hand.
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P210: Keep away from heat, sparks, open flames and hot surfaces. - No smoking.
P233: Keep container tightly closed.
P235: Keep cool.
P240: Ground/bond container and receiving equipment.
P241: Use explosion-proof electrical ventilating, lighting and other equipment.
P242: Use only non-sparking tools.

P243: Take precautionary measures against static discharge.
P260: Do not breathe fumes, mists, vapours or spray.
P262: Do not get in eyes, on skin, or on clothing.
P264: Wash contacted areas thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P271: Use only outdoors or in a well ventilated area.
P272: Contaminated work clothing should not be allowed out of the workplace.
P273: Avoid release to the environment.
P280: Wear protective gloves, protective clothing and eye or face protection.
P284: Wear respiratory protection.

RESPONSE

P314: Get medical advice or attention if you feel unwell.
P363: Wash contaminated clothing before reuse.
P301+P310+P330+P331: IF SWALLOWED: Immediately call a POISON CENTRE or doctor. Rinse mouth. Do NOT induce vomiting.
P303+P361+P353+P310: IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water. Immediately call a POISON CENTRE or doctor/physician.
P304+P340+P310: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTRE or doctor/physician.
P305+P351+P338+P310: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTRE or doctor/physician.
P308+P313: If exposed or concerned: Get medical advice.
P309+P311 If exposed or if you feel unwell: Call a POISON CENTRE or doctor/physician.
P333+P313: If skin irritation or rash occurs: Get medical advice.
P370+P378: In case of fire, use carbon dioxide, dry chemical, foam, water fog. Alcohol resistant foam is the preferred firefighting medium but, if it is not available, fine water spray can be used.

STORAGE

P405: Store locked up.
P410: Protect from sunlight.
P402+P404: Store in a dry place. Store in a closed container.
P403+P235: Store in a well-ventilated place. Keep cool.

DISPOSAL

P501: Dispose of contents and containers as specified on the registered label.

Emergency Overview

Physical Description & colour: Colourless to light yellow liquid.
Odour: Aldehyde odour.
Major Health Hazards: very toxic by inhalation, toxic in contact with skin and if swallowed, causes burns, respiratory tract irritant.

Section 3 - Composition/Information on Ingredients

Ingredients	CAS No	Conc,% (w/w)	TWA (mg/m^3)	STEL (mg/m^3)
Acrolein	107-02-8	95	0.23	0.69
1,4-dihydroxybenzene; hydroquinone	123-31-9	0.1-0.5	2	not set

This is a commercial product whose exact ratio of components may vary slightly. Minor quantities of other non hazardous ingredients are also possible.

The SWA TWA exposure value is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. The STEL (Short Term Exposure Limit) is an exposure value that may be equalled (but should not be exceeded) for no longer than 15 minutes and should not be repeated more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The term "peak "is used when the TWA limit, because of the rapid action of the substance, should never be exceeded, even briefly.

Section 4 - First Aid Measures

General Information:

You should call The Poisons Information Centre if you feel that you may have been poisoned, burned or irritated by this product. The number is 13 11 26 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have this SDS with you when you call.

Inhalation: Get medical attention immediately. Move exposed person to fresh air. Keep person warm and at rest. Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an

open airway. DO NOT allow victim to move about unnecessarily. Symptoms of pulmonary oedema can be delayed up to 48 hours after exposure.

Skin Contact: Get medical attention immediately. Wash with plenty of soap and water. Quickly and gently blot away excess liquid. Flush contaminated area with lukewarm, gently flowing water for at least 20-30 minutes, by the clock. DO NOT INTERRUPT FLUSHING. If necessary, keep emergency vehicle waiting (show paramedics this SDS and take their advice). Under running water, remove contaminated clothing, shoes and leather goods (eg watchbands and belts). Continue to rinse for at least 15 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before use.

Eye Contact: Get medical attention immediately. Immediately flush the contaminated eye(s) with plenty of water, occasionally lifting the upper and lower eyelids. DO NOT INTERRUPT FLUSHING. If necessary, keep emergency vehicle waiting (show paramedics this SDS and take their advice). Take care not to rinse contaminated water into the unaffected eye or onto face. If irritation persists, repeat flushing. Call a Poisons Information Centre or a doctor urgently. Take special care if exposed person is wearing contact lenses. Continue to rinse for at least 15 minutes. Chemical burns must be treated promptly by a physician.

Ingestion: Get medical attention immediately. Wash out mouth with water and contact a Poisons Information Centre, or call a doctor at once. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. If unconscious, please in recovery position and get medical attention immediately. Maintain an open airway. Give activated charcoal if instructed.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	:	Causes serios eye damage.
Inhalation	:	Fatal if inhaled.
Skin contact	:	Causes severe burns. Toxic in contact with skin.
Ingestion	:	Fatal if swallowed.

Over-exposure signs/symptoms

Eye contact	:	Adverse symptoms may include the following: pain, watering, redness.
Inhalation	:	No specific data.
Skin contact	:	Adverse symptoms may include the following: pain or irritation, redness, blistering may occur.
Ingestion	:	Adverse symptoms may include the following: stomach pains.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	:	Treatment of the irritative effects of acrolein should be symptomatic and supportive. Following inhalation of acrolein, signs of respiratory dysfunction should be sought and hypoxia corrected. Specific treatment for bronchospasm and non-cardiogenic pulmonary oedema may be necessary. Hypoxia may also occur following the ingestion of acrolein if there is pulmonary aspiration and/or laryngeal oedema. The extent and severity of the corrosive effects on the upper gastrointestinal mucosa should be determined, for example, by endoscopy, and advice should be sought regarding the need for surgical intervention. Probable mucosal damage may contraindicate the use of gastric lavage.
Specific treatments	:	No specific treatment.
Protection of first-aiders	:	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Additional information

Persons exposed to vapours may have a delayed reaction and experience severe irritation of the respiratory tract and delayed pulmonary oedema. Therefore, it is advisable to keep person exposed to high concentrations of vapour under observation for 24 hours following exposure If fully conscious promptly drink one to two glasses of water. Get immediate medical attention. Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression, and convulsion may be needed.

Section 5 - Fire Fighting Measures

Fire and Explosion Hazards: The major hazard in fires is usually inhalation of heated and toxic or oxygen deficient (or both), fire gases. This product is classified as flammable. There is a moderate risk of an explosion from this product if commercial quantities are involved in a fire. Firefighters should take care and appropriate precautions. Vapours from this product are heavier than air and may accumulate in sumps, pits and other low-lying spaces, forming potentially explosive mixtures. They may also flash back considerable distances.

Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures.

Extinguishing Media: Use dry chemical, CO_2, water spray (fog) or foam. Do not use water jet. Try to contain spills, minimise spillage entering drains or water courses.

Fire Fighting: If a significant quantity of this product is involved in a fire, call the fire brigade. There is a danger of a violent reaction or explosion if significant quantities of this product are involved in a fire. Recommended personal protective equipment is liquid-tight chemical protective clothing and breathing apparatus.

Flash point: -25°C, TCC

Upper Flammability Limit: 31%

Lower Flammability Limit: 2.8%

Autoignition temperature: 220°C

Flammability Class: Flammable Category 2 (GHS); Highly Flammable (AS1940).

Specific hazards arising from the chemical:

Highly flammable liquid and vapour. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapour/gas is heavier than air and will spread along the ground. Vapours may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Special protective actions for fire fighters:

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire fighters:

Fire fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Hazardous thermal decomposition products: Carbon dioxide, carbon monoxide.

Hazchem code: •2WE

Remark: Toxic gases and vapours (such as carbon monoxide and peroxides) may be released in a fire involving acrolein. In the presence of sufficient oxygen and complete combustion, the combustion products further breakdown to carbon dioxide and water.

Section 6 - Accidental Release Measures

Accidental release: In the event of a major spill, prevent spillage from entering drains or water courses. Evacuate the spill area and deny entry to unnecessary and unprotected personnel. Immediately call the Fire Brigade. Wear full protective chemically resistant clothing including eye/face protection, gauntlets and self contained breathing apparatus. See below under Personal Protection regarding Australian Standards relating to personal protective equipment. Suitable materials for protective clothing include butyl rubber. Eye/face protective equipment should comprise as a minimum, protective goggles. If there is a significant chance that vapours or mists are likely to build up in the cleanup area, we recommend that you use a respirator. It should be fitted with a type AX cartridge, suitable for low boiling point organic compounds. See manufacturer's specifications for detailed specifications.
Stop leak if safe to do so, and contain spill. Cover release with sodium carbonate (soda ash) and mix into spill with water. The soda ash and acrolein will form a solid by-product after addition of water. Alternatively, absorb with paper towel, dry sand or other absorbent. For ground or surface contamination, remove contaminated media and dispose of properly. Contain all water for proper disposal. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

If spill is too large or if absorbent material is not available, try to create a dike to stop material spreading or going into drains or waterways. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vapour suppression: if available, blanket spill area with alcohol-resistant foam to reduce the vapour concentration. Reapply foam as needed to counteract the rapid breakdown of the foam blanket. Wash spillages into an effluent treatment plant or proceed as follows: Pump bulk fluid to appropriate storage containers for proper disposal. After recovery of the bulk fluid, neutralization of any remaining material can be accomplished by covering with sodium carbonate (soda ash) and mixing with water. Ratio is 2.5 kg of soda ash to each liter of acrolein followed by 5 liters of water per liter of acrolein. The soda ash and acrolein will form a solid by-product after addition of water. When deactivation is complete scoop the solid material into properly marked containers for disposal. Use non-combustible absorbent material e.g. sand, earth, vermiculite or diatomaceous earth to absorb any remaining liquid. Contaminated absorbent material may pose the same hazard as the spilt product. Because of the toxicity of this product, special personal care should be taken in any cleanup operation. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage, and dispose of promptly. Recycle containers wherever

possible after careful cleaning. Refer to product label for specific instructions. After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. Full details regarding disposal of used containers, spillage and unused material may be found on the label. If there is any conflict between this SDS and the label, instructions on the label prevail. Ensure legality of disposal by consulting regulations prior to disposal. Thoroughly launder protective clothing before storage or re-use. Advise laundry of nature of contamination when sending contaminated clothing to laundry.

Section 7 - Handling and Storage

Handling: Keep exposure to this product to a minimum, and minimise the quantities kept in work areas. Check Section 8 of this SDS for details of personal protective measures, and make sure that those measures are followed. The measures detailed below under "Storage" should be followed during handling in order to minimise risks to persons using the product in the workplace. Also, avoid contact or contamination of product with incompatible materials listed in Section 10.

Storage: This product is a Scheduled Poison. Observe all relevant regulations regarding sale, transport and storage of this schedule of poison. Store in original container protected from direct sunlight in a cool, well ventilated area. Check containers periodically for leaks. Containers should be kept closed in order to minimise contamination. Make sure that the product does not come into contact with substances listed under "Incompatibilities" in Section 10. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. If you keep more than 500kg or L of Dangerous Goods of Packaging Group I, you may be required to license the premises or notify your Dangerous Goods authority. If you have any doubts, we suggest you contact your Dangerous Goods authority in order to clarify your obligations. Check packaging - there may be further storage instructions on the label.

Section 8 - Exposure Controls and Personal Protection

The following Australian Standards will provide general advice regarding safety clothing and equipment:

Respiratory equipment: **AS/NZS 1715**, Protective Gloves: **AS 2161**, Occupational Protective Clothing: AS/NZS 4501 set 2008, Industrial Eye Protection: **AS1336** and **AS/NZS 1337**, Occupational Protective Footwear: **AS/NZS2210**.

SWA Exposure Limits	**TWA (mg/m^3)**	**STEL (mg/m^3)**
Acrolein	0.23	0.69
Hydroquinone	2	not set

The ADI for Acrolein is set at 0.0005mg/kg/day. The corresponding NOEL is set at 0.05mg/kg/day. ADI means Acceptable Daily Intake; NOEL means No-observable-effect-level. Data from Australian ADI List, June 2014.

No special equipment is usually needed when occasionally handling small quantities. The following instructions are for bulk handling or where regular exposure in an occupational setting occurs without proper containment systems.

Ventilation: Use only with adequate ventilation. Make sure that the work environment remains clean and that vapours and mists are minimised.

Eye Protection: Your eyes must be completely protected from this product by splash resistant goggles with face shield. All surrounding skin areas must be covered. Emergency eye wash facilities must also be available in an area close to where this product is being used.

Skin Protection: Because of the dangerous nature of this product, make sure that all skin areas are completely covered by impermeable gloves, overalls, hair covering, apron and face shield. See below for suitable material types.

Protective Material Types: We suggest that protective clothing be made from the following materials: butyl rubber.

Respirator: If there is a significant chance that vapours or mists are likely to build up in the area where this product is being used, we recommend that you use a full-face respirator. It should be fitted with a type MB cartridge, suitable for methyl bromide.

Safety deluge showers should, if practical, be provided near to where this product is being used.

Section 9 - Physical and Chemical Properties:

Physical Description & colour:	Colourless to light yellow liquid.
Odour:	Aldehyde odour.
Boiling Point:	53°C at 100kPa
Melting Point:	-87°C
Volatiles:	Min 95% at 100°C.
Vapour Pressure:	31.3 kPa at 22°C
Vapour Density:	1.93 (Air = 1)
Specific Gravity:	0.847 at 16°C
Water Solubility:	22g/100mL water at 20°C
pH:	No data.

Volatility: No data.
Odour Threshold: No data.
Evaporation Rate: >1 (anhydrous ether = 1)
Coeff Oil/water distribution: No data.
Viscosity: 0.329cps at 20°C
Autoignition temp: 220°C

Section 10 - Stability and Reactivity

Reactivity: This product is unlikely to react or decompose under normal storage conditions. However, if you have any doubts, contact the supplier for advice on shelf life properties.
Conditions to Avoid: This product should be kept in a cool place, preferably below 30°C. Keep containers tightly closed. Containers should be kept dry. Keep containers and surrounding areas well ventilated. Keep away from heat, flames and sparks. Keep away from sources of sparks or ignition. Handle and open containers carefully. Any electrical equipment in the area of this product should be flame proofed. Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapour to accumulate in low or confined areas.
Incompatibilities: Alkalies, acids and oxidising materials. Alkaline or strong acid contamination can cause a reaction which can be rapid and violent. Prevent water contamination of acrolein storage containers.
Fire Decomposition: Combustion forms peroxides and carbon dioxide, and if incomplete, carbon monoxide and smoke. Water is also formed. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.
Polymerisation: Hazardous polymerization may occur. Loss of hydroquinone stabilizer may result in polymerization under certain conditions. Air introduced into closed containers may cause a slow polymerization, resulting in loss of product quality.

Section 11 - Toxicological Information

Local Effects:
Target Organs: There is no data to hand indicating any particular target organs.

Hydroquinone is a SWA Class 3 Mutagen, possibly mutagenic to humans.
Hydroquinone is classed by SWA as a potential sensitiser by skin contact.

Classification of Hazardous Ingredients

Ingredient	Risk Phrases
Acrolein	Conc>=25%: T+; R26; R24/25; R34

- Flammable liquid - category 2
- Acute toxicity (oral) - category 2
- Acute toxicity (dermal) - category 3
- Acute toxicity (inhalation) - category 1
- Skin corrosion - category 1B
- Hazardous to the aquatic environment (acute) - category 1

Hydroquinone

- Carcinogenicity - category 2
- Germ cell mutagenicity - category 2
- Acute toxicity - category 4
- Eye damage - category 1
- Skin sensitisation - category 1
- Hazardous to the aquatic environment (acute) - category 1

Hydroquinone is a SWA Class 3 Mutagen, possibly mutagenic to humans.
Hydroquinone is Classed by SWA as a potential sensitiser by skin contact.

Oral (LD_{50}): 29 mg/kg [Rat]; 11.8 mg/kg [Female rat]; 10.3 mg/kg [Male rat].
Dermal (LD_{50}): 231.4 mg/kg [Rabbit].
Vapour (LC_{50}): 26 mg/kg at 1 hour [Rat], 8.3 mg/kg at 4 hours [Rat]Irritation - Draize Skin - 2 mg/24H: Severe
Test (Rabbit) Eye - 50 µg/24H: Severe
Skin - 15 ppm solution: Not irritating

TOXICITY DATA
Acrolein
A potential human health effect resulting from overexposure is the development of permanent lung damage in the form of decreased pulmonary (lung) function, and delayed pulmonary oedema (fluid in the lungs) which can lead to

chronic respiratory disease. As a highly reactive aldehyde, prolonged or repeated overexposures can produce long-term respiratory effects by significantly reducing ciliary action in the upper airways (i.e., interfering with the body's ability to clear mucous and foreign substances from the respiratory tract) and causing tissue damage throughout the lungs manifested as emphysema.
Acrolein may cause allergies, including skin rash, hives, and asthma characterized by delayed hypersensitivity (RTECS). Levels of 0.4 to 4.9 ppm caused eye and nose irritation and structural changes in the respiratory system of hamsters, rats and rabbits. Acrolein produced greater susceptibility to respiratory infections in mice and rats.

DEVELOPMENTAL/REPRODUCTION STUDIES

Acrolein has been tested for developmental and reproductive health effects. Results from developmental studies indicated this material did not cause teratogenic effects in rats or rabbits at doses that caused maternal toxicity. A two generation rat reproductive study did not reveal any evidence of reproductive toxicity in either sex from any treatment group (maximum dose = 7.2 mg/kg). A second two-generation reproductive study in rats did not reveal any evidence of reproductive toxicity in either sex from any treatment group (maximum dose = 6 mg/kg).

DERMAL TESTING

In a 21 day dermal toxicity test in rabbits dosed at 7, 21 and 63 mg/kg of acrolein, toxicity was evidenced by slight to significant reduction in body weight gain, nasal mucous discharge, lethargy, slight to moderately lowered food consumption and increased frequency of lesions of the skin and lungs. Slight mortality in female rabbits dosed at 21 and 63 mg/kg was observed. No notable effects in haematology, blood chemistry, organ weights or organ weight ratios were observed.

INHALATION TOXICITY STUDY

Rats were exposed by inhalation (6h/day 5 d/week for 62 days) to 0, 0.4, 1.4 and 4.0 ppm acrolein. Mortality was only observed in the 4 ppm group and was due mainly to acute bronchopneumonia. Weight gain in the 4 ppm group was significantly slower than the control group. Examination of the 4 ppm group revealed bronchiolar epithelial necrosis and sloughing and oedema.

CHRONIC TOXICITY/ONCOGENICITY STUDIES

In a 12-month chronic toxicity test in dogs, the highest dose (2 mg/kg) tested resulted in changes in blood chemistry, but no compound-related tumours or lesions were observed. An 18-month oncogenicity study in mice did not reveal any compound-related tumours or lesions; the highest dose tested (4.5 mg/kg) resulted in increased mortality in the test group.
A 24-month chronic toxicity/oncogenicity study in rats also did not reveal any compound related tumours or lesions. The high dose, 2.5 mg/kg, caused an increased mortality in the test group. No indications of cancer were found in the tests.

MUTAGENICITY STUDIES

Effects of Acrolein on the In Vitro Induction of Chromosomal Aberrations in CHO Cells: No significant increase in the number of chromosomal aberrations above the background. Effects of Acrolein on the In Vivo Induction of Chromosomal Aberrations in Rat Bone Marrow Cells: No significant increase in the number of chromosomal aberrations above the background. Salmonella Liquid Suspension Mutant Fraction Assay: Acrolein did not induce concentration-dependent mutagenicity in any of the 5 Salmonella strains, either in the presence or absence of metabolic activation.

METABOLISM DATA

Metabolism studies in freshwater fish, shellfish, goats, hens, rats and leaf lettuce indicate that acrolein is metabolized and does not accumulate in the tissue.

GENERAL INFORMATION

Exposure to this product may aggravate medical conditions involving the following: heart, cardiovascular system, respiratory tract, skin/epithelium, eyes.

TARGET ORGANS

Respiratory tract, eyes, skin/epithelium, cardiovascular system. Based on the presence of hydroquinone, and information in HSIS on acrolein, we have taken a precautionary approach and classified this product as a skin sensitiser.

Potential Health Effects

Inhalation:

Short term exposure: Available data shows that this product is very toxic, but symptoms are not available. In addition product is a severe inhalation irritant. Symptoms may include headache, extreme irritation of nose and throat and increased secretion of mucous in the nose and throat. Other symptoms may also become evident, and may last long after exposure has ceased. If liquid enters nasal passages, it will cause pain and burn nasal membranes. Patients with inhalation burns may develop acute pulmonary oedema.

Long Term exposure: No data for health effects associated with long term inhalation.

Skin Contact:

Short term exposure: Available data shows that this product is toxic, but further symptoms are not available. In addition product is corrosive to the skin. Capable of causing moderate to severe burns with ulceration. Can penetrate to deeper layers of skin, resulting in third degree burns. Corrosion will continue until product is removed or

neutralised. Severity depends on concentration and duration of exposure. Burns may not be immediately painful; the onset of pain may be minutes to hours.

Long Term exposure: No data for health effects associated with long term skin exposure.

Eye Contact:

Short term exposure: This product is corrosive to eyes. It will cause severe pain, and corrosion of the eye and surrounding facial tissues. Unless exposure is quickly treated, permanent blindness and facial scarring is likely.

Long Term exposure: No data for health effects associated with long term eye exposure.

Ingestion:

Short term exposure: Significant oral exposure is considered to be unlikely. Available data shows that this product is toxic, but further symptoms are not available. However, this product is corrosive to the gastrointestinal tract. Capable of causing moderate to severe burns with ulceration. Can penetrate to deeper layers of skin, resulting in third degree burns. Corrosion will continue until product is removed or neutralised. Severity depends on concentration and duration of exposure.

Long Term exposure: No data for health effects associated with long term ingestion.

Carcinogen Status:

SWA: Hydroquinone is classified by SWA as a Class 3 Carcinogen, possibly carcinogenic to humans.
See the SWA website for further details. A web address has not been provided as addresses frequently change.

NTP: No significant ingredient is classified as carcinogenic by NTP.

IARC: Acrolein is Class 3 - unclassifiable as to carcinogenicity to humans.
Hydroquinone is Class 3 - unclassifiable as to carcinogenicity to humans.
See the IARC website for further details. A web address has not been provided as addresses frequently change.

Section 12 - Ecological Information

This product is very toxic to aquatic organisms. This product is biodegradable. It will not accumulate in the soil or water or cause long term problems.
This product is very toxic to aquatic organisms.

Bluegill sunfish (*Lepomis macrochirus*)	96hr LC_{50}:	24 ppb
Rainbow trout (*Oncorhynchus mykiss*)	96hr LC_{50}:	24 ppb
Water flea (*Daphnia magna*)	48hr LC_{50}:	22 ppb
Eastern oysters (*Crassostrea virginica*)	96hr EC_{50}:	180 ppb
Mysid shrimp (*Mysidopsis bahia*)	96hr LC_{50}:	500 ppb
Mysid shrimp (*Holmesimysis costata*)	96hr LC_{50}:	790 ppb
Sheepshead minnows (*Cyprinodon variegatus*)	96hr LC_{50}:	570 ppb
Marine copepod (*Acartia tonsa*)	48hr LC_{50}:	55 ppb
Saltwater diatom (*Skeletonema costatum*)	120hr EC_{50}:	27 ppb

DEGRADABILITY

In an aerobic aquatic metabolism study, the water phase revealed the rapid degradation of acrolein with all metabolites further mineralized to carbon dioxide. Results indicate hydration was an early step in acrolein degradation. The first-order kinetic half-life of acrolein was determined to be 33.7 hours in the water phase under laboratory conditions. Under field conditions, the half life of acrolein in freshwater ranged from six to ten hours.
In an aerobic soil metabolism study the half-life of acrolein was found to be 4.2 hours in soil-water mixtures and was ultimately transformed into carbon dioxide.

Section 13 - Disposal Considerations

Do not dispose of unused chemical on site. Contact ADAMA representative for further information.

Handling empty containers:

Magnacide H containers are reusable and remain the property of the manufacturer.
When empty they should be returned to the manufacturer for cleaning and refilling.

Preparation for Shipment of Empty Containers

Prepare empty containers for shipment as follows:

1. Replace plugs in the inlet and outlet valves and tighten securely.
2. Secure (lock) valve handles.
3. Close lid and secure with latch.
4. Containers must be transported upright with redundant securing. Alert the carrier to secure containers to prevent overturning during transport.
5. Contact your ADAMA representative for pick up.

Note: Do not attempt cleaning of containers

Section 14 - Transport Information

Dangerous according to Australian Dangerous Goods (ADG) Code, IATA and IMDG/IMSBC criteria.

UN Number: 1092, ACROLEIN, STABILIZED
Hazchem Code: •2WE
Special Provisions: None allocated
Limited quantities: ADG 7 specifies no Limited Quantity value for this class of product.
Dangerous Goods Class: Class 6.1: Toxic Substances.
Sub Risk: Class 3, Flammable liquids.
Packing Group: I
Packing Instruction: P601

Class 6 Toxic Substances shall not be loaded in the same vehicle or packed in the same freight container with Classes 1 (Explosives), 3 (Flammable Liquids where the Flammable Liquid is nitromethane), 5.1 (Oxidising Agents where the Toxic Substances are Fire Risk Substances), 5.2 (Organic Peroxides where the Toxic Substances are Fire Risk Substances), 8 (Corrosive Substances where the Toxic Substances are cyanides and the Corrosives are acids), Foodstuffs and foodstuff empties. They may however be loaded in the same vehicle or packed in the same freight container with Classes, 2.1 (Flammable Gases), 2.2 (Non-Flammable, Non-Toxic Gases), 2.3 (Toxic Gases), 3 (Flammable liquids, except where the flammable liquid is nitromethane), 4.1 (Flammable Solids), 4.2 (Spontaneously Combustible Substances), 4.3 (Dangerous When Wet Substances), 5.1 (Oxidising Agents except where the Toxic Substances are Fire Risk Substances), 5.2 (Organic Peroxides except where the Toxic Substances are Fire Risk Substances), 7 (Radioactive Substances), 8 (Corrosive Substances except where the Toxic Substances are cyanides and the Corrosives are acids), 9 (Miscellaneous Dangerous Goods)

Section 15 - Regulatory Information

AICS: All of the significant ingredients in this formulation are compliant with NICNAS regulations.
The following ingredients: Acrolein, Hydroquinone, are mentioned in the SUSMP.

Section 16 - Other Information

This SDS contains only safety-related information. For other data see product literature.

Acronyms:

ADG Code	Australian Code for the Transport of Dangerous Goods by Road and Rail, 7th Edition
AICS	Australian Inventory of Chemical Substances
CAS number	Chemical Abstracts Service Registry Number
Hazchem Code	Emergency action code of numbers and letters that provide information to emergency services especially firefighters
IARC	International Agency for Research on Cancer
SWA	Safe Work Australia, formerly ASCC and NOHSC
NOS	Not otherwise specified
NTP	National Toxicology Program (USA)
R-Phrase	Risk Phrase
SUSMP	Standard for the Uniform Scheduling of Medicines & Poisons
UN Number	United Nations Number

Contact Points:

Call Adama on (02) 9431 7800 and ask for the technical manager. **Fax: (02) 9431 7700**

Police and Fire Brigade:	**Dial 000**
Emergency contact:	**1800 024 973 (24 hours)**

If ineffective: **Dial Poisons Information Centre (13 1126 from anywhere in Australia)**

THIS SDS SUMMARISES OUR BEST KNOWLEDGE OF THE HEALTH AND SAFETY HAZARD INFORMATION OF THE PRODUCT AND HOW TO SAFELY HANDLE AND USE THE PRODUCT IN THE WORKPLACE. EACH USER MUST REVIEW THIS SDS IN THE CONTEXT OF HOW THE PRODUCT WILL BE HANDLED AND USED IN THE WORKPLACE.

IF CLARIFICATION OR FURTHER INFORMATION IS NEEDED TO ENSURE THAT AN APPROPRIATE RISK ASSESSMENT CAN BE MADE, THE USER SHOULD CONTACT THIS COMPANY SO WE CAN ATTEMPT TO OBTAIN ADDITIONAL INFORMATION FROM OUR SUPPLIERS

OUR RESPONSIBILITY FOR PRODUCTS SOLD IS SUBJECT TO OUR STANDARD TERMS AND CONDITIONS, A COPY OF WHICH IS SENT TO OUR CUSTOMERS AND IS ALSO AVAILABLE ON REQUEST.

Please read all labels carefully before using product.

This SDS is prepared in accord with the SWA document “Preparation of Safety Data Sheets for Hazardous Chemicals - Code of Practice” (December 2011)

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