Section 1 - Identification of The Material and Supplier

Adama Australia Pty Ltd,
Suite 1, Level 4, 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: Simazine is a 1,3,5-triazine derivative.

Trade Name: **Simanex 900 WG Herbicide**

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

Creation Date: **July, 2002**

This version issued: **June 2016** 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: Hazardous according to the criteria of SWA Australia.

Not a Dangerous Good according to Australian Dangerous Goods (ADG) Code, IATA and IMDG/IMSBC criteria.

SUSMP Classification: None allocated.
ADG Classification: None allocated. Not a Dangerous Good.
UN Number: None allocated

GHS Signal word: WARNING.

Carcinogenicity Category 2

HAZARD STATEMENT:

H351: Suspected of causing cancer.

PREVENTION

P102: Keep out of reach of children.
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P262: Do not get in eyes, on skin, or on clothing.
P281: Use personal protective equipment as required.

RESPONSE

P337: If eye irritation persists: seek medical attention.
P352: Wash with plenty of soap and water.
P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P308+P313: If exposed or concerned: Get medical advice.
P370+P378: Not combustible. Use extinguishing media suited to burning materials.

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: Buff coloured granulated solid.
Odour: Mild, sweet odour.
Major Health Hazards: The triazine herbicides disturb energy metabolism (thiamin and riboflavin functions). Symptoms include difficulty in walking, tremor, convulsions, paralysis, cyanosis, slowed respiration, miosis (pinpoint

pupils), gut pain, diarrhea, and impaired adrenal function. No cases of poisoning in humans have been reported from ingestion of Simazine.

Section 3 - Composition/Information on Ingredients

Ingredients	CAS No	Conc,%	TWA (mg/m^3)	STEL (mg/m^3)
Simazine	122-34-9	90	not set	not set
Other non hazardous ingredients	secret	to 100	not set	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 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 should not be exceeded for more than 15 minutes and should not be repeated for 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 1126 from anywhere in Australia and is available at all times. Have this SDS with you when you call.

Inhalation: First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.
Skin Contact: No specific health data is available for this product. If any unusual symptoms become evident, or if in doubt, contact a Poisons Information Centre or a doctor.
Eye Contact: No effects expected. If irritation does occur, flush contaminated eye(s) with lukewarm, gently flowing water for 5 minutes or until the product is removed.
Ingestion: First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

Section 5 – Fire Fighting Measures

Fire and Explosion Hazards: There is no risk of an explosion from this product under normal circumstances if it is involved in a fire.
Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures.
Extinguishing Media: Preferred extinguishing media are carbon dioxide, dry chemical, foam, water fog.
Fire Fighting:

Flash point:	No data
Upper Flammability Limit:	No data.
Lower Flammability Limit:	No data.
Autoignition temperature:	No data.
Flammability Class:	No data.

Section 6 – Accidental Release Measures

Accidental release: In the event of a major spill, prevent spillage from entering drains or water courses. As a minimum, wear overalls, goggles and gloves. Suitable materials for protective clothing include cotton, rubber, PVC. Stop leak if safe to do so, and contain spill. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage, and dispose of promptly. 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: Make sure that containers of this product are kept tightly closed. Make sure that the product does not come into contact with substances listed under "Materials to avoid" in Section 10. 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)**
Exposure limits have not been established by SWA for any of the significant ingredients in this product.

The ADI for Simazine is set at 0.005mg/kg/day. The corresponding NOEL is set at 0.5mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values taken from Australian ADI List, June 2013.

Ventilation: No special ventilation requirements are normally necessary for this product. However make sure that the work environment remains clean and that dusts are minimised.
Eye Protection: Eye protection is not normally necessary when this product is being used. However, if in doubt, wear suitable protective glasses or goggles.
Skin Protection: The information at hand indicates that this product is not harmful and that normally no special skin protection is necessary. However, we suggest that you routinely avoid contact with all chemical products and that you wear suitable gloves (preferably elbow-length) when handling this product.
Protective Material Types: We suggest that protective clothing be made from the following materials: cotton, rubber, PVC.
Respirator: If there is a significant chance that dusts are likely to build up in the area where this product is being used, we recommend that you use a suitable Dust Mask.

Section 9 - Physical and Chemical Properties:

Physical Description & colour:	Buff coloured granulated solid.
Odour:	Mild, sweet odour.
Boiling Point:	Not applicable.
Freezing/Melting Point:	No specific data. Simazine melts with decomposition at 225-227°C
Volatiles:	No specific data. Expected to be low at 100°C.
Vapour Pressure:	No data. Expected to be negligible at normal room temperatures.
Vapour Density:	No data.
Specific Gravity:	No data.
Water Solubility:	Dispersible.
pH:	No data.
Volatility:	No data.
Odour Threshold:	No data.
Evaporation Rate:	No data.
Coeff Oil/water distribution:	No data
Autoignition temp:	No data.

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.
Incompatibilities: strong oxidising agents.
Fire Decomposition: Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Nitrogen and its compounds, and under some circumstances, oxides of nitrogen. Occasionally hydrogen cyanide gas. Hydrogen chloride gas, other compounds of chlorine. Water. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death. Hydrogen cyanide poisoning signs and symptoms are weakness, dizziness, headache, nausea, vomiting, coma, convulsions, and death. Death results from respiratory arrest. Hydrogen cyanide gas acts very rapidly; symptoms and death can both occur quickly.
Polymerisation: This product is unlikely to undergo polymerisation processes.

Section 11 – Toxicological Information

Toxicity: Acute toxicity: Simazine is slightly to practically nontoxic. The reported oral LD_{50} for technical Simazine in rats and mice is >5000 mg/kg ; its dermal LD_{50} is 3100 mg/kg in rats and > 10,000 mg/kg in rabbits. The 4-hour inhalation LC_{50} in rats is greater than 2 mg/L. The formulated products, in most cases, are less toxic via all routes. Simazine is nonirritating to the skin and eyes of rabbits except at high doses. Patch tests on humans have shown that Simazine is not a skin irritant, fatiguing agent, or sensitizer. However, rashes and dermatitis from occupational exposure to Simazine have occurred. The triazine herbicides disturb energy metabolism (thiamin and riboflavin functions). Symptoms include difficulty in walking, tremor, convulsions, paralysis, cyanosis, slowed respiration, miosis (pinpoint pupils), gut pain, diarrhea, and impaired adrenal function. No cases of poisoning in humans have been reported from ingestion of Simazine. Rats given an oral dose of 5000 mg/kg exhibited drowsiness and irregular breathing. In another study, a single oral dose of 4200 mg/kg produced anorexia, weight loss, and some deaths in rats within 4 to 10 days. For unknown reasons, sheep and cattle are especially susceptible to poisoning by Simazine. Doses of 500 mg/kg were fatal in sheep with death delayed for 5 to 16 days. Symptoms exhibited by poisoned sheep included lower food intake, higher water intake, incoordination, tremors, and weakness, especially in the hindquarters.
Chronic toxicity: Some 90-day feeding studies showed reduced body weight at 67 to 100 mg/kg/day. This same effect and kidney toxicity were seen in rats at doses of 150 mg/kg/day. In 2-year chronic oral feeding studies in which rats were given daily dosages of 5 mg/kg/day of Simazine in the diet, no gross or microscopic signs of toxicity were seen. When rats were given repeated doses of 15 mg/kg/day, some liver cells degenerated during the first 3 days, but the condition did not progress. Instead, the liver adapted and the compound was metabolized. Other effects observed in test animals include tremors, damage to the testes, kidneys, liver, and thyroid, disturbances in sperm production, and gene mutations.
Reproductive effects: No adverse effects on reproductive capacity or development were observed in a three-generation study of rats fed 5 mg/kg/day Simazine. High rates of foetotoxicity and decreased birth weight were noted in the foetuses of pregnant rabbits fed 75 mg/kg/day. Reproductive effects are not likely in humans under normal circumstances.
Teratogenic effects: No dose-related teratogenic effects were observed when rabbits were given daily doses of 5, 75, or 200 mg/kg for days 7 through 19 of pregnancy. Chronic inhalation of a cumulative dose of 0.3 mg/L for 8 days in pregnant rats resulted in no treatment-related developmental abnormalities. Simazine does not appear to be teratogenic.
Mutagenic effects: Simazine has shown negative results in a variety of mutagenicity tests on bacterial cultures. Tests on human lung cell cultures have produced both positive and negative results. When injected into adult male fruit flies, Simazine increased the frequency of sex-linked lethal mutations, but failed to do so when fed to larvae. Other tests for mutagenicity in fruit flies were negative. It is likely that Simazine is either nonmutagenic or weakly mutagenic.
Carcinogenic effects: Simazine was not tumorigenic in mice at the maximum tolerated dose of 215 mg/kg/day over an 18-month period. In other studies, doses as low as 5 mg/kg/day produced excess tumors (thyroid and mammary) in female rats. Because of inconsistencies in the data, it is not possible to determine Simazine's carcinogenic status.
Organ toxicity: Damage to the testes, kidneys, liver, and thyroid has been observed in test animals.
Fate in humans and animals: Studies in rats, goats, and sheep reveal that 60 to 70% of the ingested dose may be absorbed into the system, with approximately 5 to 10% distributed systemically to tissues. The remainder is eliminated via urine within 24 hours. Distribution led to detectable levels in red blood cells (highest), liver, kidney, fat, bone, and plasma. When a cow was fed 5 ppm for 3 days, no Simazine was found in the cow's milk during the next 3 days. It has been reported that Simazine residues were present in the urine of sheep for up to 12 days after administration of a single oral dose. The maximum concentration in the urine occurred from 2 to 6 days after administration.

Potential Health Effects

Inhalation
Short term exposure: Available data indicates that this product is not harmful. However, this product may be mildly irritating, but is unlikely to cause anything more than mild transient discomfort.

Skin Contact:
Short term exposure: Available data indicates that this product is not harmful. It should present no hazards in normal use. In addition, this product is unlikely to cause any discomfort in normal use.

Eye Contact:
Short term exposure: Available data shows that this product is not harmful. In addition, this product may be mildly irritating to eyes, but is unlikely to cause anything more than mild discomfort which should disappear once product is removed.

Ingestion:

Short term exposure: Available data shows that this product is not harmful. This product is unlikely to cause any irritation problems in the short or long term.

Carcinogen Status:

SWA: No significant ingredient is classified as carcinogenic by SWA.
NTP: No significant ingredient is classified as carcinogenic by NTP.
IARC: Simazine is Class 3 - unclassifiable as to carcinogenicity to humans.

Section 12 – Ecological Information

Effects on birds: Simazine is practically nontoxic to birds. The reported LD_{50} values in mallard and Japanese quail are >4600 mg/kg and 1785 mg/kg, respectively. The acute dietary LD_{50} values in hens and pigeons are both greater than 5000 ppm. The 8-day dietary LC_{50} in bobwhite quail is >5260 ppm and in mallard ducks is >10,000 ppm.
Effects on aquatic organisms: Simazine is slightly to practically nontoxic to aquatic species. The 96-hour LC_{50} for Simazine is >100 mg/L in rainbow trout, 100 mg/L (wettable powder) in bluegill sunfish, 0.100 mg/L in fathead minnows, as well as carp. It may be more toxic to Daphnia and stoneflies. A 96-hour LC_{50} of >3.7 mg/L is reported in oysters.
Effects on other organisms: While many mammals may be insensitive to Simazine, sheep and cattle are especially sensitive. Simazine is nontoxic to bees. A soil LC_{50} in earthworms of >1000 mg/kg has been reported.
Environmental Fate:
Breakdown in soil and groundwater: Simazine is moderately persistent with an average field half-life of 60 days. Soil half-lives of 28-149 days have been reported. Residual activity may remain for a year after application (2 to 4 kg/ha) in high pH soils. Simazine is moderately to poorly bound to soils. It does, however, adsorb to clays and mucks. Its low water solubility, however, makes it less mobile, limiting its leaching potential. Simazine has little, if any, lateral movement in soil, but can be washed along with soil particles in runoff. Simazine is subject to decomposition by ultraviolet radiation, but this effect is small under normal field conditions. Loss from volatilization is also insignificant. In soils, microbial activity probably accounts for decomposition of a significant amount of Simazine in high pH soils. In lower pH soils, hydrolysis will occur. Simazine residues have been detected in groundwater in at least 16 states. The range was from 0.00002 mg/L to 0.0034 mg/L.
Breakdown in water: The average half-life of Simazine in ponds where it has been applied is 30 days, with the actual half-life dependent on the level of algae present, the degree of weed infestation, and other factors. Simazine may undergo hydrolysis at lower pH. It does not readily undergo hydrolysis in water at pH = 7.
Breakdown in vegetation: Plants absorb Simazine mainly through the roots, with little or no foliar penetration. From the roots, it is translocated upward to the stems, leaves, and growing shoots of the plant. It acts to inhibit photosynthesis. Resistant plants readily metabolize Simazine. Plants that are sensitive to Simazine accumulate it unchanged. It is possible that livestock or wildlife grazing on these plants could be poisoned.

Section 13 – Disposal Considerations

Disposal: Special help is available for the disposal of Agricultural Chemicals. The product label will give general advice regarding disposal of small quantities, and how to cleanse containers. However, for help with the collection of unwanted rural chemicals, contact ChemClear 1800 008 182 http://www.chemclear.com.au/ and for help with the disposal of empty drums, contact DrumMuster http://www.drummuster.com.au/ where you will find contact details for your area.

Section 14 – Transport Information

UN Number: This product is not classified as a Dangerous Good by ADG, IATA or IMDG/IMSBC criteria. No special transport conditions are necessary unless required by other regulations.

Section 15 – Regulatory Information

AICS: All of the significant ingredients in this product are compliant with NICNAS regulations.

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)

http://www.kilford.com.au/ Phone (02)9251 4532