SECTION 1 - PRODUCT & COMPANY IDENTIFICATION

ARYSTA LifeScience South Africa (Pty) Ltd
Co. Reg. No.: 2009/019713/07
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Substance:	hexazinone
Product Name:	**Hexazinone 750 WSG**
Product Use:	Herbicide
Creation Date:	November 2005
Revision Date:	March 2011

24 Hr Emergency Number:	082 771 2712
In case of Poisoning:	
Poison Information Centre	082 446 8946
Tygerberg Hospital:	(021) 931 6129
Poison Emergency Enquiries	(021) 689 5227
In case of Spillage:	
HAZMAT:	0800 147 112

SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENTS

Common name:	hexazinone
Chemical Name:	3-cyclohexyl-6-dimethylamino-1-methyl-1,3,5-triazine-2,4-(1*H*,3*H*)-dione (**IUPAC**)
CAS No.:	51235-04-2
Chemical Family:	triazinone
Chemical Formula:	$C_{12}H_{20}N_4O_2$
Molecular weight:	252.3
Use:	Non-selective, contact herbicide, absorbed by the leaves and roots, with translocation acropetally.
Formulation:	240 g/ℓ Soluble Liquid

Hazardous ingredients of toxicological concern:

Inert:	concern:	% present:
hexazinone	harmful, severe eye irritant	75 %
Other ingredients	I	25 %

Symbol:	Xi
Indication of danger:	Irritant
Risk-Phrases:	R22, R36/38, R41

SECTION 3 - HAZARD IDENTIFICATION

Likely routes of exposure:
Skin: May cause slight irritation, however the product is not likely to be a skin irritant. Not expected to be a skin sensitizer.
Eye: May cause severe irritation and damage to the eyes. Irreversible irritant.
Inhalation: Not a hazard under normal use conditions.
Swallowed: Product is slightly toxic. Harmful if swallowed.
Effects due to acute exposure may include irritation of the eyes, nose and throat, as well as nausea and vomiting.
Carcinogenicity Information:
None of the inerts present in this product, are listed as a carcinogen.

SECTION 4 - FIRST AID MEASURES AND PRECAUTIONS

Inhalation:
If vapours or mists have been inhaled, and irritation has developed, remove the source of contamination or move victim to fresh air. The patient should be kept under observation and obtain medical attention if irritation persists.

Skin contact:
Remove contaminated clothing, shoes and leather goods. Wash skin gently and thoroughly with cold water and non-abrasive soap. Obtain medical attention if irritation persists.
Eye contact:
Immediately flush eyes with a stream of clean water for at least 20 minutes, holding the eyelid(s) open. Obtain medical attention if irritation persists.
Ingestion:
Do not induce vomiting. Do not give anything by month to an unconscious person. Obtain medical attention immediately. If the person is alert, rinse mouth thoroughly with water and give one or two glasses of water to drink.
Advice on treatment:
There is no specific antidote available.
Treat symptomatically. Probable mucosal damage may contra-indicate the use of the gastric lavage.

SECTION 5 - FIRE-FIGHTING MEASURES

Flash point: Does not flash
Hazardous products of decomposition:
High volume water jet, (contamination risk). Fire may produce irritating or poisonous vapours (toxic fumes of carbon oxides and nitrogen oxides), mists or other products of combustion.
Extinguishing agents:
Water spray, Foam, Dry chemical, Carbon dioxide (CO2)
Fire fighting:
In the event of fire, wear self-contained breathing apparatus. Wear full protective equipment.(on small fires) If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the area contaminated. Cool containers / tanks with water spray.
Do not allow run-off from fire fighting to enter drains or water courses.
Fire Fighting Instructions:
Keep personnel removed and upwind of fire. Wear self-contained breathing apparatus. Wear full protective equipment.
If area is exposed to fire and conditions permit, let fire burn itself out. Burning chemicals may produce by-products more toxic than the original material. If product is on fire, wear self contained breathing apparatus and full protective equipment. Use water spray. Control runoff.

SECTION 6 - ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal precautions:
Avoid contact with skin and eyes. Do not breathe in spray or fumes.
For personal protection see Section 8.
Environmental precautions:
Do not allow entering drains or watercourses. Spillage or uncontrolled discharges into water courses (or public waters) to be reported immediately to the Police and to the Department of Water/Environmental Affairs.
Occupational spill:
Shovel or sweep up and place in suitable containers for later disposal. Keep out unprotected persons and animals.
For spills:
In situations where product comes in contact with water, contain contaminated water for later disposal. Prevent material from spreading by damming in with absorptive material. Do not flush spilled material into drains. Keep spectators away and upwind.
To decontaminate spill area, tools and equipment, wash with a suitable solution (i.e. organic solvent, detergent bleach or caustic). Add the solution to the drums already collected. Label drums with its content and dispose it in accordance with local regulations.
Open burning or dumping of this material is prohibited.

SECTION 7 - HANDLING AND STORAGE REQUIREMENTS

Handling:
Harmful in contact with eyes and if swallowed. Severe irritant to eyes. Avoid contact with eyes and skin, and inhalation of spray and vapour. Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Operators should change and wash clothing daily. Remove clothing immediately if the pesticide gets inside. Then wash skin thoroughly using a non-abrasive soap and put on clean clothing. Do not apply directly to areas where surface water is present, or to intertidal areas below the mean high water mark. Water used to clean equipment must be disposed of correctly to avoid contamination.
Storage:
Keep under lock and key and out of reach of unauthorised persons, children and animals. Store in its original labelled container in isolated, dry, cool and well-ventilated area. Not to be stored next to foodstuffs and water supplies. Local regulations should be complied with.

SECTION 8 - EXPOSURE CONTROL/PERSONAL PROTECTION

It is essential to provide adequate ventilation. The measures appropriate for a particular work site depend on how this material is used and on the extent of exposure. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire, and other applicable regulations.

PERSONAL PROTECTIVE EQUIPMENT:

If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection.

Respirator:

An approved respirator suitable for protection from mists of pesticides is adequate. Limitations of respirator use specified by the approved agency and the manufacturer must be observed.

Clothing:

Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.

Gloves:

Employee must wear appropriate synthetic protective gloves to prevent contact with this substance.

Eye protection:

The use of safety goggles is recommended.

***Emergency eye wash*:** Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Brown to off white free flowing granules
Flash point:	Not applicable
Solubility:	Soluble in water.
Bulk density:	0.5 g/mℓ ± 0,01 (at 20ºC)
pH:	5 - 9

SECTION 10 - STABILITY AND REACTIVITY

Stability:

The product is stable for 3 years, when stored under normal storage conditions at normal temperatures. Avoid extreme heating conditions, as vapours can be released which can be ignited.

Conditions and Materials to Avoid:

Keep the product in a cool, dry place, at below 30 ^{O}C. Protect form sunlight, open flame and sources of heat. Avoid contact with acids and bases.

Hazardous decomposition products:

Fire may produce harmful combustion products (traces of carbon oxides and nitrogen oxides).

SECTION 11 - TOXICOLOGICAL INFORMATION

Acute oral LD_{50} rats:	*1310 mg/kg*
Acute dermal LD_{50} rabbits:	*> 5000 mg/kg*
Inhalation:	*LC_{50} (1hour): > 7.48 mg/ℓ*

Toxicity is very low.

Inhalation of excessive amounts may cause respiratory irritation.

Acute skin irritation:	May cause moderate irritation
Acute eye irritation:	*severe irritant and damage*

Dermal sensitization:

Not expected to be a skin sensitizer. Individuals may develop an allergic response.

Mutagenicity:

Hexazinone showed no mutagenic activity in the Ames assay and tests using Chinese hamster ovary cell cultures. In living animal tests, no changes in chromosomal structure occurred. In other laboratory analyses of its capacity to induce genetic disruption, results were inconclusive. The evidence suggests hexazinone is either slightly or nonmutagenic.

Reproductivity:

Female rats, fed moderate to high doses (up to 150 mg/kg) over two generations, showed no effects on reproduction or milk production, but only reduced offspring weight. Available evidence suggests that hexazinone is unlikely to cause reproductive effects in humans.

Teratogenicity:
Pregnant female rats receiving doses up to 100 mg/kg/day during gestation, and rabbits receiving up to 125 mg/kg/day, evidenced no fetal abnormalities. Teratogenic effects were observed in rats only at maternal doses greater than 400 mg/kg/day during gestation. It is unlikely that hexazinone would pose a teratogenic effects in humans under normal conditions.
Carcinogenicity:
Rats, mice, and dogs have been tested for 1 to 2 years on diets containing up to 500 mg/kg. Hexazinone was not carcinogenic in rats, and was only carcinogenic in mice at dietary levels of over 300 mg/kg. At these levels in mice, liver adenomas were observed. These studies suggest that hexazinone is unlikely to be carcinogenic to humans under normal circumstances.

SECTION 12 - ECOLOGICAL INFORMATION

Mobility, Degradability & Accumulation:
Hexazinone is of moderate to high persistence in the soil environment. Measured field half-lives range from less than 30 to 180 days, with a representative value of about 90 days. Hexazinone is broken down by soil microbes, which release carbon dioxide in the process. Sunlight may also break down the compound via photodegradation. Hexazinone does not evaporate to any appreciable extent from soil. Hexazinone is very poorly adsorbed to soil particles, very soluble in water, and slowly degraded, so it is likely to be mobile in most soils and has the potential to contaminant groundwater.
Photodecomposition, biodegradation, and dilution are the prime mechanisms for loss of hexazinone activity in aquatic systems.
Hexazinone is readily absorbed in the root zone and translocated throughout the plant. It is less mobile following uptake from the foliage. It is converted in non-susceptible plants to less phytotoxic compounds. In susceptible plants, it is more persistent and can result in disruption of photosynthesis and chloroplast damage.
Hexazinone is fairly rapidly processed and excreted by animal systems. Rats typically excrete hexazinone almost completely within 3 to 6 days, the majority in urine. Long-term exposure does not diminish this rapid processing and elimination; rats given prior exposure for 2 weeks excreted almost all of the product within 3 days. Less than 1% of the parent hexazinone was detected in urine and faeces. There does not appear to be any significant tissue accumulation.
ECOTOXICOLOGY:
Birds: Slightly to practically non-toxic to birds.

Oral LD_{50}:	Bobwhite quail:	2258 mg/kg
LC_{50} (8 day diet):	Bobwhite quail:	> 10 000 mg/kg
	Mallard ducks:	> 10 000 mg/kg

Fish: Slightly toxic to fish.

LC_{50} (96 hours):	Bluegill sunfish:	> 370 mg/ℓ
	Rainbow trout:	> 320 mg/ℓ

The bioconcentration factor in bluegill sunfish is only seven times the ambient water concentration, indicating very low bioaccumulation in fish.
Daphnia:

LC_{50} (48 hours):	*Daphnia magna:*	151 mg/ℓ
Bees: Not toxic to bees. LD_{50}:		> 60 µg/bee

Algae:

EC_{50} (120 hours):	*Selenastrum capricornutum*:	0.007 mg/mℓ
	Anabaena flos-aquae:	0.21 mg/mℓ

SECTION 13 - DISPOSAL CONSIDERATION

Pesticide disposal:
Open dumping or burning of this pesticide is prohibited. Waste resulting from the use of this product cannot be reused or reprocessed. Never pour untreated waste or surplus products into public sewers or where there is any danger of run-off or seepage into water systems. Do not contaminate rivers, dams or any other water sources with the product or used containers.
Comply with local legislation applying to waste disposal.
Container disposal:
Emptied containers retain vapour and product residues. Observe all labelled safeguards until container is destroyed.
Do not re-use the empty container for any other purpose but destroy it by perforation and flattening and bury in an approved dump site. Prevent contamination of food, feedstuffs, drinking water and eating utensils.
Comply with local legislation applying to waste disposal.

SECTION 14 - TRANSPORT INFORMATION

UN NUMBER	3077
ADR/IRD	
Proper shippjng name:	Environmentally hazardous substance, solid, n.o.s. (Hexazinone 75%)
Classification code:	M 7

Class:	9 Marine pollutant.
Packaging group:	III
IMDG/IMO	
Proper shipping name:	Environmentally hazardous substance, solid, n.o.s. (Hexazinone 75%)
Class:	9
Label:	9 Marine pollutant
Packaging group:	III
AIR/IATA	
Proper shipping name:	Environmentally hazardous substance, solid, n.o.s. (Hexazinone 75%)
Class:	9
Packaging group:	III
Passenger Aircraft:	Y911 (max 30 kg Gross weight)
	911 (No Limit)
Cargo Aircraft:	911 (No Limit)
UK classification:	UN 3077
Tremcard number:	90GM7-III

SECTION 15 - REGULATORY INFORMATION

Symbol: Xi
Indication of danger: Irritant
Risk phrase(s):

R 22	Harmful if swallowed.
R36/38	Irritating to eyes and skin.
R 41	Risk of serious damage to eyes.

Safety phrases:

S 1/2	Keep out of reach children.
S 13	Keep away from food, drink and animal feedingstuffs.
S 16	Keep away from sources of ignition – No smoking.
S 20/21	When using do not eat, drink or smoke.
S 26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 36/39	Wear suitable protective clothing and eye/face protection.

SECTION 16 - OTHER INFORMATION

Disclaimer:
The information on this sheet is not a specification; it does not guarantee specific properties. The information is intended to provide general guidance as to health and safety based upon our knowledge of the handling, storage use of the product. It is not applicable to unusual or non-standard uses of the product nor where instructions or recommendations are not followed.
All information is given in good faith but without guarantee in respect of accuracy, and no responsibility is accepted for errors and omissions or the consequence thereof.