

Eureka Gold

Zagro Australia Pty Ltd

Chemwatch Hazard Alert Code: 3

Chemwatch: 5418-44

Version No: 2.1.1.1

Safety Data Sheet according to WHS and ADG requirements

Issue Date: 30/07/2020

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L.GHS.AUS.EN

SECTION 1 Identification of the substance / mixture and of the company / undertaking

Product Identifier

Product name	Eureka Gold
Chemical Name	Not Applicable
Synonyms	Not Available
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains diazinon)
Chemical formula	Not Applicable
Other means of identification	Not Available

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Spray on Lousicide.
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Details of the supplier of the safety data sheet

Registered company name	Zagro Australia Pty Ltd
Address	7 Koojan Avenue South Guildford, Perth WA 6055 Australia
Telephone	+61 8 9321 2888
Fax	Not Available
Website	Not Available
Email	askzagro@zagro.com

Emergency telephone number


Association / Organisation	Technical Support
Emergency telephone numbers	+61 8 9321 2888 (Mon - Fri 8am - 5pm WST)
Other emergency telephone numbers	Not Available

SECTION 2 Hazards identification

Classification of the substance or mixture

Poisons Schedule	S6
Classification [1]	Carcinogenicity Category 1B, Chronic Aquatic Hazard Category 2
Legend:	1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI

Label elements

Hazard pictogram(s)	
Signal word	Danger

Hazard statement(s)

H350	May cause cancer.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statement(s) Prevention

P201	Obtain special instructions before use.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P273	Avoid release to the environment.

Precautionary statement(s) Response

P308+P313	IF exposed or concerned: Get medical advice/attention.
P391	Collect spillage.

Precautionary statement(s) Storage

P405	Store locked up.
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Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.
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SECTION 3 Composition / information on ingredients

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
333-41-5	9.3	<u>diazinon</u>
Not Available	balnce	Ingredients determined not to be hazardous

SECTION 4 First aid measures

Description of first aid measures

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Wash out immediately with fresh running water. ▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▶ Seek medical attention without delay; if pain persists or recurs seek medical attention. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	<p>If product comes in contact with skin:</p> <ul style="list-style-type: none"> ▶ Contact a Poisons Information Centre or a doctor. ▶ DO NOT allow clothing wet with product to remain in contact with skin, strip all contaminated clothing including boots. ▶ Quickly wash affected areas vigorously with soap and water. ▶ DO NOT give anything by mouth to a patient showing signs of narcosis, i.e. losing consciousness. ▶ Give atropine if instructed. ▶ DO NOT delay, get to a doctor or hospital quickly.
Inhalation	<ul style="list-style-type: none"> ▶ If spray mist, vapour are inhaled, remove from contaminated area. ▶ Contact a Poisons Information Centre or a doctor at once. ▶ Lay patient down in a clean area and strip any clothing wet with spray. ▶ Protheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ▶ DO NOT give anything by mouth to a patient showing signs of narcosis, i.e. losing consciousness. ▶ Give atropine if instructed. ▶ Get to doctor or hospital quickly.
Ingestion	<p>If swallowed:</p> <ul style="list-style-type: none"> ▶ Contact a Poisons Information Centre or a doctor at once. ▶ If swallowed, activated charcoal may be advised. ▶ Give atropine if instructed. ▶ REFER FOR MEDICAL ATTENTION WITHOUT DELAY.

- ▶ In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.
- ▶ If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the SDS should be provided.
- ▶ Further action will be the responsibility of the medical specialist.
- ▶ If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the SDS.

Indication of any immediate medical attention and special treatment needed

- ▶ Most organophosphate compounds are rapidly well absorbed from the skin, conjunctiva, gastro-intestinal tract and lungs.
- ▶ They are detoxified by Cytochrome P450-mediated monooxygenases in the liver but some metabolites are more toxic than parent compounds.
- ▶ Metabolites are usually detected 12-48 hours postexposure.
- ▶ Organophosphates phosphorylate acetylcholinesterase with resultant accumulation of large amounts of acetylcholine causing initial stimulation, then exhaustion of cholinergic synapse.
- ▶ gamma-aminobutyric acid (GABA)-ergic and dopaminergic pathways provide compensatory inhibition.
- ▶ The clinical manifestation of organophosphate toxicity results from muscarinic, nicotinic and CNS symptoms.
- ▶ A garlic-like odour emanating from the patient or involved container may aid the diagnosis.
- ▶ Immediate life-threatening symptoms usually are respiratory problems.
- ▶ Frequent suction and, if necessary, endotracheal intubation and assisted ventilation may be necessary to maintain adequate oxygenation.
- ▶ Theophylline compounds, to treat bronchospasm, should be used cautiously as they may lower the seizure threshold.
- ▶ Excessive secretions and bronchospasm should respond to adequate doses of atropine.
- ▶ Diazepam is the drug of choice for convulsions.
- ▶ Usual methods of decontamination, (activated charcoal and cathartics) should be used when patients present within 4-6 hours postexposure.
- ▶ The administration of atropine, as an antidote, does not require confirmation by acetylcholinesterase levels. Severely poisoned patients develop marked resistance to the usual doses of atropine. [Atropine should not be given to a cyanosed patient - ICI] **NOTE:** Hypoxia must be corrected before atropine is given. For adult: 2 mg repeatedly SC or IV until atropinization is achieved and maintained (atropinization is characterised by decreased bronchial secretions, heart rate >100 bpm, dry mouth, dilated pupils).
- ▶ Pralidoxime (2-PAM, Protopam) is a specific antidote when given within 24 hours and perhaps up to 36-48 hours postexposure. Although it ameliorates muscle weakness, fasciculations and alterations of consciousness, it does not relieve bronchospasm or bronchorrhea and must be given concurrently with atropine. **NOTE:** Pralidoxime should be given as an adjunct to, **NOT** a replacement for atropine and should be given in every case where atropine therapy is deemed necessary. Traditional dose: 1 g (or 2 g in severe cases) by slow IV injection over 5-10 minutes. 1-2 g, 4 hourly (maximum dose 12 g in 24 hours) until clinical and analytical recovery is achieved and maintained.
- ▶ Avoid parasympathomimetic agents. Phenothiazines and antihistamines may potentiate organophosphate activity. [Ellenhorn and Barceloux: Medical Toxicology]

NOTE: Acute pancreatitis in organophosphate intoxication may be more common than reported. The possible pathogenesis of pancreatic insult are excessive cholinergic stimulation of the pancreas and ductular hypertension. Early recognition and appropriate therapy for acute pancreatitis may lead to an improved prognosis.

Cheng-Tin Hsiao, et al; *Clinical Toxicology* 34(3), 343-347 (1996)

BIOLOGICAL EXPOSURE INDEX - BEI

These represent the determinants observed in specimens collected from a healthy worker exposed at the Exposure Standard (ES or TLV):

Determinant	Index	Sampling Time	Comments
1. Cholinesterase activity in red cells	70% of individual's baseline	Discretionary	NS

B: Background levels occur in specimens collected from subjects **NOT** exposed

NS: Non-specific determinant; Also observed after exposure to other materials

SQ: Semi-quantitative determinant; Interpretation may be ambiguous. Should be used as a screening test or confirmatory test.

Some jurisdictions require that health surveillance be conducted on occupationally exposed workers. Such surveillance should emphasise

- ▶ demography, occupational and medical history and health advice
- ▶ physical examination
- ▶ baseline estimation of red cell and plasma cholinesterase activity levels by the Ellman method. Estimation of red cell and plasma cholinesterase activity towards the end of the working day

SECTION 5 Firefighting measures

Extinguishing media

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.
- Water spray or fog - Large fires only.

Special hazards arising from the substrate or mixture

Fire Incompatibility	▸ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result
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Advice for firefighters

Fire Fighting	<ul style="list-style-type: none"> ▸ Alert Fire Brigade and tell them location and nature of hazard. ▸ Wear full body protective clothing with breathing apparatus. ▸ Prevent, by any means available, spillage from entering drains or water course. ▸ Use water delivered as a fine spray to control fire and cool adjacent area. ▸ Avoid spraying water onto liquid pools. ▸ DO NOT approach containers suspected to be hot. ▸ Cool fire exposed containers with water spray from a protected location. ▸ If safe to do so, remove containers from path of fire.
Fire/Explosion Hazard	<ul style="list-style-type: none"> ▸ Combustible. ▸ Slight fire hazard when exposed to heat or flame. ▸ Heating may cause expansion or decomposition leading to violent rupture of containers. ▸ On combustion, may emit toxic fumes of carbon monoxide (CO). ▸ May emit acrid smoke. ▸ Mists containing combustible materials may be explosive. <p>Combustion products include: carbon dioxide (CO₂) phosphorus oxides (PO_x) sulfur oxides (SO_x) other pyrolysis products typical of burning organic material.</p>
HAZCHEM	•3Z

SECTION 6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	<p>Environmental hazard - contain spillage.</p> <ul style="list-style-type: none"> ▸ Clean up all spills immediately. ▸ Avoid breathing vapours and contact with skin and eyes. ▸ Control personal contact with the substance, by using protective equipment. ▸ Contain and absorb spill with sand, earth, inert material or vermiculite. ▸ Wipe up. ▸ Place in a suitable, labelled container for waste disposal.
Major Spills	<p>Environmental hazard - contain spillage.</p> <ul style="list-style-type: none"> ▸ Clear area of personnel and move upwind. ▸ Alert Fire Brigade and tell them location and nature of hazard. ▸ Wear full body protective clothing with breathing apparatus. ▸ Prevent, by all means available, spillage from entering drains or water courses. ▸ Consider evacuation (or protect in place). ▸ No smoking, naked lights or ignition sources. ▸ Increase ventilation. ▸ Stop leak if safe to do so. ▸ Water spray or fog may be used to disperse / absorb vapour. ▸ Contain or absorb spill with sand, earth or vermiculite. ▸ Collect recoverable product into labelled containers for recycling. ▸ Collect solid residues and seal in labelled drums for disposal. ▸ Wash area and prevent runoff into drains. ▸ After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using. ▸ If contamination of drains or waterways occurs, advise emergency services.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 Handling and storage

Precautions for safe handling

Safe handling	<ul style="list-style-type: none"> ▶ Avoid all personal contact, including inhalation. ▶ Wear protective clothing when risk of exposure occurs. ▶ Use in a well-ventilated area. ▶ Prevent concentration in hollows and sumps. ▶ DO NOT enter confined spaces until atmosphere has been checked. ▶ Avoid smoking, naked lights or ignition sources. ▶ Avoid contact with incompatible materials. ▶ When handling, DO NOT eat, drink or smoke. ▶ Keep containers securely sealed when not in use. ▶ Avoid physical damage to containers. ▶ Always wash hands with soap and water after handling. ▶ Work clothes should be laundered separately. ▶ Use good occupational work practice. ▶ Observe manufacturer's storage and handling recommendations contained within this SDS. ▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.
Other information	<ul style="list-style-type: none"> ▶ Store in original containers. ▶ Keep containers securely sealed. ▶ No smoking, naked lights or ignition sources. ▶ Store in a cool, dry, well-ventilated area. ▶ Store away from incompatible materials and foodstuff containers. ▶ Protect containers against physical damage and check regularly for leaks. ▶ Observe manufacturer's storage and handling recommendations contained within this SDS.

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ Metal can or drum ▶ Packaging as recommended by manufacturer. ▶ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	<ul style="list-style-type: none"> ▶ A number of phosphate and thiophosphate esters are of limited thermal stability and undergo highly exothermic self-accelerating decomposition reactions which may be catalysed by impurities. ▶ The potential hazards can be reduced by appropriate thermal control measures. <p>BREITHERICK L.: Handbook of Reactive Chemical Hazards</p> <p>Thermal decomposition of organophosphate esters, in the presence of trimethylolpropane or its homologues (common components of synthetic lubricants), may produce bicyclic phosphates and phosphites. These may occur be produced in as little as 5 minutes at 650 deg C. These bicyclic compounds are a class of materials with neurotoxic properties which produce convulsive seizures in test animals. The formation of these compounds does not occur, for example, in the presence of a pentaerythritol base (another common component of synthetic lubricants).</p> <ul style="list-style-type: none"> ▶ Avoid reaction with oxidising agents

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	diazinon	Diazinon	0.1 mg/m3	Not Available	Not Available	Not Available

Emergency Limits


Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
Eureka Gold	Not Available	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
diazinon	Not Available	Not Available

MATERIAL DATA

Exposure controls

Appropriate engineering controls	<p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.</p>
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	<p>The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use. Employers may need to use multiple types of controls to prevent employee overexposure.</p> <ul style="list-style-type: none"> ▶ Employees exposed to confirmed human carcinogens should be authorized to do so by the employer, and work in a regulated area. ▶ Work should be undertaken in an isolated system such as a "glove-box" . Employees should wash their hands and arms upon completion of the assigned task and before engaging in other activities not associated with the isolated system. ▶ Within regulated areas, the carcinogen should be stored in sealed containers, or enclosed in a closed system, including piping systems, with any sample ports or openings closed while the carcinogens are contained within. ▶ Open-vessel systems are prohibited. ▶ Each operation should be provided with continuous local exhaust ventilation so that air movement is always from ordinary work areas to the operation. ▶ Exhaust air should not be discharged to regulated areas, non-regulated areas or the external environment unless decontaminated. Clean make-up air should be introduced in sufficient volume to maintain correct operation of the local exhaust system. ▶ For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood. Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood. ▶ Except for outdoor systems, regulated areas should be maintained under negative pressure (with respect to non-regulated areas). ▶ Local exhaust ventilation requires make-up air be supplied in equal volumes to replaced air. ▶ Laboratory hoods must be designed and maintained so as to draw air inward at an average linear face velocity of 0.76 m/sec with a minimum of 0.64 m/sec. Design and construction of the fume hood requires that insertion of any portion of the employees body, other than hands and arms, be disallowed.
<p>Personal protection</p>	
<p>Eye and face protection</p>	<ul style="list-style-type: none"> ▶ Safety glasses with side shields. ▶ Chemical goggles. ▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]
<p>Skin protection</p>	<p>See Hand protection below</p>
<p>Hands/feet protection</p>	<ul style="list-style-type: none"> ▶ Wear chemical protective gloves, e.g. PVC. ▶ Wear safety footwear or safety gumboots, e.g. Rubber <p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.</p> <p>Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.</p> <p>Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:</p> <ul style="list-style-type: none"> · frequency and duration of contact, · chemical resistance of glove material, · glove thickness and · dexterity <p>Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).</p> <ul style="list-style-type: none"> · When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended. · When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended. · Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use. · Contaminated gloves should be replaced. <p>As defined in ASTM F-739-96 in any application, gloves are rated as:</p> <ul style="list-style-type: none"> · Excellent when breakthrough time > 480 min · Good when breakthrough time > 20 min · Fair when breakthrough time < 20 min · Poor when glove material degrades

	<p>For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended.</p> <p>It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.</p> <p>Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task.</p> <p>Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:</p> <ul style="list-style-type: none"> · Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of. · Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential <p>Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.</p>
Body protection	See Other protection below
Other protection	<ul style="list-style-type: none"> ▸ Employees working with confirmed human carcinogens should be provided with, and be required to wear, clean, full body protective clothing (smocks, coveralls, or long-sleeved shirt and pants), shoe covers and gloves prior to entering the regulated area. [AS/NZS ISO 6529:2006 or national equivalent] ▸ Employees engaged in handling operations involving carcinogens should be provided with, and required to wear and use half-face filter-type respirators with filters for dusts, mists and fumes, or air purifying canisters or cartridges. A respirator affording higher levels of protection may be substituted. [AS/NZS 1715 or national equivalent] ▸ Emergency deluge showers and eyewash fountains, supplied with potable water, should be located near, within sight of, and on the same level with locations where direct exposure is likely. ▸ Prior to each exit from an area containing confirmed human carcinogens, employees should be required to remove and leave protective clothing and equipment at the point of exit and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. The contents of such impervious containers must be identified with suitable labels. For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood. ▸ Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood. ▸ Overalls. ▸ P.V.C apron. ▸ Barrier cream. ▸ Skin cleansing cream. ▸ Eye wash unit.

Respiratory protection

Type A-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required. Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	A-AUS P2	-	A-PAPR-AUS / Class 1 P2
up to 50 x ES	-	A-AUS / Class 1 P2	-
up to 100 x ES	-	A-2 P2	A-PAPR-2 P2 ^

^ - Full-face

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO₂), G = Agricultural chemicals, K = Ammonia(NH₃), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.
- The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
- Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Clear yellow liquid with characteristic odour; mixes with water.		
Physical state	Liquid	Relative density (Water = 1)	~1

Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Available	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Applicable	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	Not Available	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Available	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water	Miscible	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> ▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable. ▶ Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 Toxicological information

Information on toxicological effects

Inhaled	Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.
Ingestion	Accidental ingestion of the material may be damaging to the health of the individual.
Skin Contact	<p>Skin contact with the material may damage the health of the individual; systemic effects may result following absorption. Open cuts, abraded or irritated skin should not be exposed to this material</p> <p>Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.</p>
Eye	Limited evidence exists, or practical experience suggests, that the material may cause eye irritation in a substantial number of individuals and/or is expected to produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.
Chronic	<p>On the basis, primarily, of animal experiments, the material may be regarded as carcinogenic to humans. There is sufficient evidence to provide a strong presumption that human exposure to the material may result in cancer on the basis of:</p> <ul style="list-style-type: none"> - appropriate long-term animal studies - other relevant information <p>Repeated or prolonged exposures to cholinesterase inhibitors produce symptoms similar to acute effects. In addition workers exposed repeatedly to these substances may exhibit impaired memory and loss of concentration, severe depression and acute psychosis, irritability, confusion, apathy, emotional lability, speech difficulties, headache, spatial disorientation, delayed reaction times, sleepwalking, drowsiness or insomnia. An influenza-like condition with nausea, weakness, anorexia and malaise has been described. There is a growing body of evidence from epidemiological studies and from experimental laboratory studies that short-term exposure to some cholinesterase-inhibiting insecticides may produce behavioural or neuro-chemical changes lasting for days or months, presumably outlasting the cholinesterase inhibition. Although the number of adverse effects following humans poisonings subsides, there are still effects in some workers months after cholinesterase activity returns to normal. These long-lasting effects include blurred vision, headache, weakness, and anorexia. The neurochemistry of animals exposed to</p>

Continued...

chlorpyrifos or fenthion is reported to be altered permanently after a single exposure. These effects may be more severe in developing animals where both acetyl- and butyrylcholinesterase may play an integral part in the development of the nervous system.

Padilla S., The Neurotoxicity of Cholinesterase-Inhibiting Insecticides: Past and Present Evidence Demonstrating Persistent Effects. Inhalation Toxicology 7:903-907, 1995

Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

Eureka Gold	TOXICITY	IRRITATION
	Not Available	Not Available
diazinon	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >2020 mg/kg ^[2]	Eye (rabbit): 100 mg - SEVERE
	Inhalation(Rat) LC50; >2.33 mg/l4hrs ^[2]	Skin (rabbit):500mg(open)-moderate
	Oral(Rat) LD50; =1250 mg/kg ^[2]	
Legend:	1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. * Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances	

For diazinon:

Acute toxicity: The toxicity of encapsulated formulations is relatively low because diazinon is not released readily while in the digestive tract. Some formulations of the compound can be degraded to more toxic forms. This transformation may occur in air, particularly in the presence of moisture, and by ultraviolet radiation. Most modern diazinon formulations in the U.S. are stable and do not degrade easily. The symptoms associated with diazinon poisoning in humans include weakness, headaches, tightness in the chest, blurred vision, nonreactive pinpoint pupils, salivation, sweating, nausea, vomiting, diarrhea, abdominal cramps, and slurred speech. Death has occurred in some instances from both dermal and oral exposures at very high levels.

Chronic toxicity: Chronic effects have been observed at doses ranging from 10 mg/kg/day for swine to 1000 mg/kg/day for rats. Inhibition of red blood cell cholinesterase, and enzyme response occurred at lower doses in the rats. Enzyme inhibition has been documented in red blood cells, in blood plasma, and in brain cells at varying doses and with different species.

Teratogenic effects: The data on teratogenic effects due to chronic exposure are inconclusive. One study has shown that injection of diazinon into chicken eggs resulted in skeletal and spinal deformities in the chicks. Bobwhite quail born from eggs treated in a similar manner showed skeletal deformities but no spinal abnormalities. Acetylcholine was significantly affected in this latter study. Tests with hamsters and rabbits at low doses (0.125-0.25 mg/kg/day) showed no developmental effects, while tests with dogs and pigs at higher levels (1.0-10.0 mg/kg/day) revealed gross abnormalities.

Mutagenic effects: While some tests have suggested that diazinon is mutagenic, current evidence is inconclusive.

Carcinogenic effects: Diazinon is not considered, by many, to be carcinogenic. Tests on rats over a 2-year period at moderate doses (about 45 mg/kg) did not cause tumour development in the test animals.

However an IARC Working Group has classified diazinon as "Possibly Carcinogenic to Humans" (Group 2A, 2016).

They did so on the basis that there is strong evidence that diazinon can operate through two key characteristics of known human carcinogens and that these can be operative in humans. Specifically:

- There is strong evidence that exposure to diazinon is genotoxic, from studies in experimental animals in vivo, and in studies in animal cell lines. In addition, studies in human cell lines in vitro show effects on chromosomal damage; this demonstrates that this mechanism can operate in humans. Additional support for human relevance is provided by positive results in a study of a small number of volunteers exposed to diazinon.
- There is also strong evidence that diazinon can act to induce oxidative stress. This evidence is from studies in experimental animals in vivo, and studies in human and animal cell lines in vitro. This mechanism has been challenged experimentally by administering antioxidants, treatment that abrogated the effects of diazinon on oxidative stress.

In its evaluation of the epidemiological studies reporting on cancer risks associated with exposure to diazinon, the Working Group identified 9 reports from 3 cohort studies, and 14 reports on 6 case-control studies, that reported on associations between cancer and exposure to diazinon specifically. Several large studies each provided multiple reports, notably the Agricultural Health Study cohort, case-control studies in the midwest USA, and the Cross-Canada Case-control Study of Pesticides and Health, which were considered to be key studies for the evaluation because of relatively large study size and because individual information was provided on specific pesticide exposures. Reports from more than two independent studies were available for non-Hodgkin lymphoma (NHL) and leukaemia. For cancers of the lung, breast, and prostate, results from two independent studies were available. For cancers of the colorectum, melanoma, bladder, kidney, multiple myeloma, Hodgkin lymphoma, soft tissue sarcoma, brain in childhood or in adults, stomach, and oesophagus, results from a single study for each cancer site were available for evaluation.

Organ toxicity: Diazinon itself is not a potent cholinesterase inhibitor. However, in animals, it is converted to diazoxon, a compound that is a strong enzyme inhibitor.

Fate in humans and animals: Metabolism and excretion rates for diazinon are rapid. The half-life of diazinon in animals is about 12 hours. The product is passed out of the body through urine and in the feces. The metabolites account for about 70% of the total amount excreted. Cattle exposed to diazinon may store the compound in their fat over the short term. One study showed that the compound cleared the cows within 2 weeks after spraying stopped. Application of diazinon to the skin of cows resulted in trace amounts in milk 24 hours after the application.

The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling the epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.

For dithiophosphate alkyl esters and their (zinc) salts:

Acute toxicity: Dithiophosphate alkyl esters consist of a phosphorodithioic acid structure with alkyl ester substituent groups. The alkyl groups are saturated hydrocarbon chains that vary in length and extent of branching. While corrosive to tissue the esters demonstrate a low concern for acute systemic toxicity. Data on acute mammalian toxicity of zinc dialkyldithiophosphates in highly refined lubricant base oil also indicate a low concern for acute toxicity. Commercial oil-based samples of the zinc dialkyldithiophosphate category have been tested for acute oral toxicity. The acute oral LD50 for these studies in rats ranged from 2000-3500 mg/kg. Clinical signs observed following treatment included diarrhea, lethargy, reduced food consumption, and staining about the nose and eye. Ptosis, piloerection, ataxia and salivation were occasionally observed. The incidence and severity of these symptoms were proportional to the dose. In many cases the effects were found to be reversible during observation week 2. Necropsy findings were few in number. Lung congestion, gastrointestinal irritation and a reduction in body fat were observed in some animals.

Acute dermal toxicity and irritation studies using the ester on experimental animals resulted in severe dermal irritation and corrosivity. There is minimal opportunity of human exposure to the chemicals in this category. Dithiophosphate alkyl esters exhibit extreme corrosive properties on skin.

Commercial oil-based samples of the zinc dialkyldithiophosphate category have been tested for acute dermal toxicity. The acute dermal LD50s for these studies in rabbits were greater than 2000 mg/kg (limit tests). No treatment-related mortality was observed at doses ranging from 2000-8000 mg/kg. Dermal application of the test materials to abraded skin for 24 hours typically produced moderate-to-severe erythema and edema, which in some cases persisted through the 14-day observation period. Clinical signs included varying degrees of reduced food consumption, weight loss, diarrhea, lethargy, ataxia, ptosis, motor incoordination and/or loss of righting reflex. There were no remarkable gross necropsy observations. Overall, the acute dermal LD50 for these substances were greater than 2000 mg/kg indicative of a relatively low order of lethal toxicity. Zinc dialkyldithiophosphates are high molecular weight components (average > 500 gm/mol), which generally accepted that the molecular weight limit for passive transport across biological membranes. Thus, upon exposure it is unlikely that significant amounts of these components will be absorbed for systemic distribution. In addition, these materials have a low water solubility that further inhibits absorption and distribution in the mammalian system.

The negligible vapor pressure and high viscosity at ambient temperature indicates that these materials are unlikely to represent an inhalation exposure under conditions of use

Repeat dose toxicity: Data from several repeated-dose toxicity studies using commercial samples of zinc dialkyldithiophosphates in highly refined lubricant base oil has been reviewed. Repeated dermal exposure to experimental animals resulted in moderate-to-severe dermal irritation, behavioral distress, body weight loss and emaciation, reduction in hematological parameters and adverse effects on male reproductive organs. These effects were observed across several members of the category with carbon chain lengths ranging from C4-8. There was no evidence that the incremental increase in carbon chain length or molecular weight could be correlated with significant changes in toxicity parameters.

Oral administration caused significant gastric irritation and related gastrointestinal disturbances, signs of distress but with no evidence of adverse effects on male reproductive organs.

Reproductive toxicity: An epidemiological study on workers exposed to oil-based zinc dialkyldithiophosphates (range C4-8) in an additive manufacturing plant revealed no adverse effects on worker reproductive health. Review of the available information underscores the similarity of clinical and pathological findings in repeated-dose dermal toxicity studies with C4-10 zinc dialkyldithiophosphates, as well as the absence of reproduction and developmental toxicity and the lack of untoward findings in a human epidemiological investigation. Reproductive organ effects, following dermal application, have been observed in male rabbits; these are attributed to the stress associated with the severe dermal responses to the test material, rather than direct a systemic response to the test materials. Changes in male reproductive organs in the rabbit have been observed when other irritating substances are applied to the skin at dose levels that cause skin lesions. Thus, dermal irritation alone, or in combination with the accompanying weight loss and stress, is thought to play a role in the reproductive organ response to repeated cutaneous application of zinc dialkyldithiophosphates.

Mutagenicity: Findings indicate that commercial samples of zinc dialkyldithiophosphates in highly refined lubricant base oil have a small potential for inducing genetic toxicity. In vitro bacterial gene mutation assays, in vitro mammalian gene mutation assays, or in vivo chromosomal aberration assays have been conducted. Frequencies of reverse mutations in bacteria were not significantly changed after exposure to the zinc dialkyldithiophosphates. In vitro mutation studies in mammalian cells indicate that the zinc dialkyldithiophosphates do not consistently display mutagenic activity in the absence of metabolic activation, however, upon biotransformation, these materials showed mutagenic activity. The findings in bacterial and mammalian cells did not vary in proportion to the alkyl chain length or any other physicochemical parameter.

The results of the studies performed in the absence of hepatic microsomal activation were inconsistent, but in general indicating that zinc dialkyldithiophosphates have mutagenic potential (3 studies negative, 3 studies positive in the absence of metabolic activation). However, the weight of evidence (2 studies positive, 1 study negative) indicates that metabolic activation of zinc dialkyldithiophosphates by induced hepatic microsomal enzymes results in a significant increase in the mutagenic potential of this class of chemical substances.

WARNING: This substance has been classified by the IARC as Group 2A: Probably Carcinogenic to Humans.
Reproductive effector ADI: 0.001 mg/kg/day NOEL: 0.1 mg/kg/day

Acute Toxicity	✘	Carcinogenicity	✔
Skin Irritation/Corrosion	✘	Reproductivity	✘
Serious Eye Damage/Irritation	✘	STOT - Single Exposure	✘
Respiratory or Skin sensitisation	✘	STOT - Repeated Exposure	✘

Eureka Gold

Mutagenicity **X**

Aspiration Hazard **X**

Legend: **X** – Data either not available or does not fill the criteria for classification
✓ – Data available to make classification

SECTION 12 Ecological information

Toxicity

Eureka Gold	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
diazinon	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	0.000072mg/L	4
	EC50	48	Crustacea	0.00026mg/L	5
	EC50	96	Algae or other aquatic plants	-0.131-1.35mg/L	4
	BCF	504	Not Available	2.94034-mg/L	4
	EC25	168	Crustacea	-0.000021-0.000265mg/L	4
	NOEL	504	Crustacea	0.00000005-mg/L	4
Legend:	Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data				

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
diazinon	HIGH	HIGH

Bioaccumulative potential

Ingredient	Bioaccumulation
diazinon	MEDIUM (BCF = 540)

Mobility in soil

Ingredient	Mobility
diazinon	LOW (KOC = 1337)



SECTION 13 Disposal considerations

Waste treatment methods

Product / Packaging disposal	<ul style="list-style-type: none"> ▶ Containers may still present a chemical hazard/ danger when empty. ▶ Return to supplier for reuse/ recycling if possible. Otherwise: <ul style="list-style-type: none"> ▶ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill. ▶ Where possible retain label warnings and SDS and observe all notices pertaining to the product. ▶ DO NOT allow wash water from cleaning or process equipment to enter drains. ▶ It may be necessary to collect all wash water for treatment before disposal. ▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ▶ Where in doubt contact the responsible authority. ▶ Recycle wherever possible or consult manufacturer for recycling options. ▶ Consult State Land Waste Authority for disposal. ▶ Bury or incinerate residue at an approved site. ▶ Recycle containers if possible, or dispose of in an authorised landfill.
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SECTION 14 Transport information

Labels Required

	
Marine Pollutant	
HAZCHEM	*3Z

Land transport (ADG)

UN number	3082	
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains diazinon)	
Transport hazard class(es)	Class	9
	Subrisk	Not Applicable
Packing group	III	
Environmental hazard	Environmentally hazardous	
Special precautions for user	Special provisions	274 331 335 375 AU01
	Limited quantity	5 L

Environmentally Hazardous Substances meeting the descriptions of UN 3077 or UN 3082 are not subject to this Code when transported by road or rail in;

(a) packagings;

(b) IBCs; or

(c) any other receptacle not exceeding 500 kg(L).

- Australian Special Provisions (SP AU01) - ADG Code 7th Ed.

Air transport (ICAO-IATA / DGR)

UN number	3082	
UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s. * (contains diazinon)	
Transport hazard class(es)	ICAO/IATA Class	9
	ICAO / IATA Subrisk	Not Applicable
	ERG Code	9L
Packing group	III	
Environmental hazard	Environmentally hazardous	
Special precautions for user	Special provisions	A97 A158 A197 A215
	Cargo Only Packing Instructions	964
	Cargo Only Maximum Qty / Pack	450 L
	Passenger and Cargo Packing Instructions	964
	Passenger and Cargo Maximum Qty / Pack	450 L
	Passenger and Cargo Limited Quantity Packing Instructions	Y964
	Passenger and Cargo Limited Maximum Qty / Pack	30 kg G

Sea transport (IMDG-Code / GGVSee)

UN number	3082	
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains diazinon)	
Transport hazard class(es)	IMDG Class	9
	IMDG Subrisk	Not Applicable
Packing group	III	
Environmental hazard	Marine Pollutant	

Special precautions for user	EMS Number	F-A , S-F
	Special provisions	274 335 969
	Limited Quantities	5 L

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
diazinon	Not Available

Transport in bulk in accordance with the ICG Code

Product name	Ship Type
diazinon	Not Available

SECTION 15 Regulatory information

Safety, health and environmental regulations / legislation specific for the substance or mixture

diazinon is found on the following regulatory lists

- Australia Chemicals with non-industrial uses removed from the Australian Inventory of Chemical Substances (old Inventory)
- Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
- Australia Model Work Health and Safety Regulations - Hazardous chemicals (other than lead) requiring health monitoring
- Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4
- Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5
- Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6
- Chemical Footprint Project - Chemicals of High Concern List
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2A: Probably carcinogenic to humans

National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (diazinon)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	Yes
Vietnam - NCI	Yes
Russia - ARIPS	No (diazinon)
Legend:	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)

SECTION 16 Other information

Revision Date	30/07/2020
Initial Date	30/07/2020

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average

PC—STEL: Permissible Concentration-Short Term Exposure Limit

IARC: International Agency for Research on Cancer

ACGIH: American Conference of Governmental Industrial Hygienists

STEL: Short Term Exposure Limit

TEEL: Temporary Emergency Exposure Limit.

IDLH: Immediately Dangerous to Life or Health Concentrations

OSF: Odour Safety Factor

NOAEL :No Observed Adverse Effect Level

LOAEL: Lowest Observed Adverse Effect Level

TLV: Threshold Limit Value

LOD: Limit Of Detection

OTV: Odour Threshold Value

BCF: BioConcentration Factors

BEI: Biological Exposure Index

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