

Pest control technical note – Safety Data Sheets

Number 13 Updated June 2018

The aim of this technical note is to provide pest control operators (PCOs) with a better understanding of the information contained in a Safety Data Sheet (SDS). For an explanation of the words and phrases appearing in **bold text** refer to the *Definition of terms* document included.

Interpreting the information contained within an SDS is important in assessing the risk involved in the use of a pesticide. An accurate assessment of risk is required to ensure the safety of the PCO and the general public. In addition, a risk assessment is a requirement of the legislation administered by the WorkSafe Victoria. For further information refer to pest control technical note number 10, *Risk assessments*.



What is an SDS?

An SDS is a document which contains information on a particular substance. It is important to read and

understand the SDS before using the associated product or pesticide.

What can I find in an SDS?

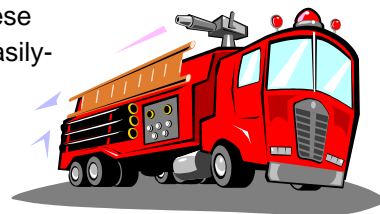
The SDS will provide advice on the safe handling and use of the pesticide in order to minimise exposure and reduce the risk of experiencing adverse health effects. Other information such as potential hazards, physical properties, health effects, toxicity, first aid, personal protection controls and safe storage and disposal is also contained in the document.

The information found in an SDS will depend largely on the pesticide in question. For a non-toxic product the SDS may be quite brief, but a more hazardous substance will warrant more detailed information on its **toxicity** and safety-related information. Therefore, each SDS is of different length depending on the hazard of the pesticide and the information available.

Who are SDSs for?

SDSs are available to the general public. They are particularly relevant to people who may be exposed to a pesticide, or employers and employees who administer pesticides. SDSs also contain important information for emergency responders in case of a pesticide spill and medical personnel in case of poisoning from exposure to a pesticide.

PCOs are required to have a copy of the SDS for every pesticide they use. These should be kept in an easily-accessible location wherever the pesticide is stored, including vehicles. This is important in case of emergencies such as fires.



PCOs may also like to provide a copy of the SDS for the products used to their clients.

Who prepares the SDS?

In Victoria the Occupational Health and Safety Regulations 2017 (the Regulations) and the Dangerous Goods (Storage and Handling) Regulations 2012 require manufacturers and importers to prepare and review SDSs for substances classified as hazardous or dangerous.

Overseas SDSs are only accepted if prepared in accordance with the Model Code of Practice: Preparation of safety data sheets for hazardous chemicals, developed by Safe Work Australia.



Where can I get an SDS?

Chemical manufacturers and importers produce SDSs. They must also provide current SDSs to any person to whom the substance is supplied on request. PCOs can obtain SDSs from chemical suppliers or manufacturers.

Employers must ensure that their employees have access to a current copy of an SDS for each and every pesticide used. They must also identify hazards and

assess risks to people and property if dangerous goods are stored, transported or handled.

How often should I obtain new SDSs?

PCOs must ensure that the SDS for each pesticide they carry is current. Check with the manufacturer for updates on SDSs every twelve months. The date of issue is specified at the top of the SDS, this indicates when the document was last issued or revised. Revisions are usually issued when new information becomes available, such as evidence of adverse health effects.

Sections of an SDS

1. IDENTIFICATION OF THE SUBSTANCE AND SUPPLIER

Section 1 contains the commercial name of the product and the details of the manufacturer or supplier, including their phone number, address and emergency contact details. The recommended or intended use should also be described.

2. HAZARDS IDENTIFICATION

The potential health effects of the substance are provided in section 2. These may result from **acute** or **chronic** exposure to the product as supplied through inhalation, skin contact or ingestion. The SDS is not necessarily indicative of the hazards associated with the diluted product or treated surfaces.



Other information includes **hazardous substance**

classification and **DG class**.

3. COMPOSITION / INFORMATION ON INGREDIENTS

In section 3 details relating to the major components of the substance are given. Pesticides may have one or more ingredients and their composition or concentrations are described here. The minor components may be stated if they are potentially hazardous. Synonyms or other names for the product may also be given. It is important to know the components of the substance used in case of emergency.

4. FIRST AID MEASURES

The first aid measures describe the initial care that would be given by a first responder in case of

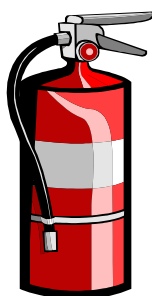
overexposure. The instructions are based on the relevant routes of exposure (inhalation, ingestion, and skin or eye contact).

Symptoms as a result of chronic exposure may be given. Any evidence that shows the pesticide to be **mutagenic, teratogenic, carcinogenic** or a **skin sensitiser** will be listed in this section.

A description of any first aid facilities specifically required may be described here (for example an eyewash station).

Section 4 may also include advice for medical practitioners in the event of exposure.

5. FIRE FIGHTING MEASURES



Section 5 provides information on measures to take if the substance is involved in a fire. It may also give details of any hazardous products, which may be emitted in a fire. Emergency action, personal protective equipment (PPE) required and precautions for fire fighters are also described.

If the **HAZCHEM code** is available it will be provided in this section.

6. ACCIDENTAL RELEASE MEASURES

This section describes actions that should be taken to contain a spill, clean up procedures and appropriate disposal methods for contaminated material.

7. HANDLING AND STORAGE

Special precautions or procedures required for safe storage and handling of the substance are specified in section 7. Storage information may include requirements such as isolation from children or storage at an appropriate temperature. Transport information may include the **ADG code**.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

In section 8 any **exposure standards** are specified. These may be expressed as **TLV (TWA and STEL)**.

Engineering controls (such as exhaust ventilation) and hygiene measures may also be listed here together with any PPE required for specific jobs (such as mixing or application). This will include face, eye and respiratory protection, clothing and other necessary PPE.

9. PHYSICAL AND CHEMICAL PROPERTIES

This section lists the physical and chemical properties of the substance. Its appearance and odour will be described. **Melting point, boiling point, specific gravity, vapour pressure, flash point, flammability** (see **flammable**) and **solubility in water** may also be listed.



10. STABILITY AND REACTIVITY

The stability of the substance under common storage conditions is given in section 10. Conditions (such as excessive heat), which need to be avoided, are listed. These may result in **decomposition** of the substance.

Any incompatible substances, which should be avoided, are also listed. These may result in a violent reaction (see **reactivity**) and release large amounts of toxic vapours.

11. TOXICOLOGICAL INFORMATION

Section 11 lists the symptoms from exposure to the substance through inhalation, ingestion, skin and eye contact.

Any data from toxicological studies on animals is reported in this section and expressed as **LD50**. These may or may not directly relate to humans.

Other known data on reproductive toxicity, mutagenicity and carcinogenicity will be given. If the substance causes eye or skin irritation or is a known sensitiser this will also be reported.

There may be an **Acceptable Daily Intake (ADI)** specified for the substance.

12. ECOLOGICAL INFORMATION

In this section, details of any known harmful effects the substance may have on the environment and precautions to be taken to avoid contamination are given.

The **LC50** data for aquatic animals, such as fish, which would be affected if the substance entered waterways may be specified. The toxicity to other animals, such as birds and bees, may also be available.

The persistence or biodegradability of the substance in the environment may be given as its **half-life**.

13. DISPOSAL CONSIDERATIONS

Instructions on the disposal of unwanted quantities of the substance or the container are given in this section.

14. TRANSPORT INFORMATION

Proper shipping names and codes are listed in section 14.

This may include the DG class, **U.N. number**, HAZCHEM code and packing group.



15. REGULATORY INFORMATION

Warning statements (such as **risk phrases** and **safety phrases**) are provided in this section together with the **poison schedule**. Information on federal and state regulations that may affect the products manufacture, distribution and application is also specified here.

16. OTHER INFORMATION

Any other information relevant to the preparation of the SDS is included in this section. Explanations of abbreviations used, literature references and other sources of data may be included.

Definition of terms

Acceptable Daily Intake (ADI):

a measure of the amount of a substance in food or drinking water that can be ingested each day over a lifetime without risk to health. This is usually expressed in milligrams (of substance) per kilogram of body weight (of person) per day.

Acute:

adverse health effects that usually occur as a result of short-term exposure to a substance.

ADG (Australian Dangerous Goods) code:

Australian code for the transport of dangerous goods by road or rail.

Boiling point:

the temperature at which a substance turns from liquid into gas.

Carcinogenic:

a substance that causes (or is believed to cause) cancer.

Chronic:

adverse health effects resulting from long-term exposure or persistent adverse health effects resulting

from short-term exposure. This can include a rash, bronchitis, cancer or any other medical condition.

Decomposition:

chemicals can 'go off' or decompose and break down into other chemicals, which may be hazardous. Decomposition may be accelerated by factors such as heat, water, UV or oxygen exposure, or extreme heat such as the event of a fire.

DG (Dangerous Goods) class:

the class allocated to a substance under the Australian Dangerous Goods Code. Dangerous goods are assigned to a class according to the predominant type of risk they pose. Most pesticides will be designated as Class 6 – Poisonous (toxic).

Exposure standards:

the maximum amount of a substance that a person may be exposed to during a day or over a period of time. These should be observed to ensure persons are not exposed to dangerous levels and are particularly useful in assessing the health risks associated with a substance.

Flammable:

a substance capable of being ignited and burning in air.

Flash point:

the lowest temperature at which a liquid will give off enough flammable vapour to form an ignitable mixture with air.

Half-life:

the time required for a substance to decay to half its initial concentration.

Hazardous substance classification:

classified according to the Globally Harmonised System of Classification and Labelling of Chemicals. Safe Work Australia has developed a Hazardous Chemical Information System as an advisory service to determine what chemicals have been classified using the above mentioned system.

HAZCHEM codes:

relate to emergency responses required for a substance in the event of a major incident. They consist of a numeral followed by one or two letters. The numeral relates to the firefighting method required (1 water jets, 2 water fog, 3 foam and 4 dry agent). The first letter denotes whether there is danger of violent reaction or explosion, the PPE required and the

measures to be taken in the case of spillage. Some of the letters are contained in a box and are reversed out from a black background. The reversed letters indicate that no toxic hazard will arise in a non-fire incident (for example, spillage only). The second letter is Code E and is used to indicate if evacuation needs to be considered by the emergency authorities.

LC50 (Lethal Concentration):

the concentration of a substance (usually in air or water) that is estimated to produce death in 50 per cent of a population of experimental animals on inhalation for a short period of time.

LD50 (Lethal Dose):

the dose of a substance that produces death in 50 per cent of a population of experimental animals. Usually expressed in milligram per kilogram of body weight (mg/kg).

Melting point:

the temperature at which a substance turns from solid to liquid (at a pressure of 760 mm Hg).

Mutagenic:

a substance that is able to produce mutations (increases the rate of changes in DNA), which may lead to defective cells or cancer.

Poison schedule:

used to classify pesticides in order to control the availability of a product to the general public. Schedules are determined upon assessment of factors such as toxicity, proposed use, need, concentration and form. Pesticides are either unscheduled, or fall into schedule 5, 6 or 7. Each schedule has a corresponding warning, which appears in large contrasting lettering on the label of the pesticide as follows:

Scheduled Poison	Label warning
Unscheduled	Some may display "KEEP OUT OF REACH OF CHILDREN"
Schedule 5	CAUTION
Schedule 6	POISON
Schedule 7	DANGEROUS POISON

Schedule 7 poisons may only be purchased and used by authorised individuals, and require extreme care when handled.

Reactivity:

the tendency of a substance to undergo a chemical reaction. Undesirable effects such as pressure build-up, temperature increase, and formation of noxious, toxic or corrosive by-products may occur as a result of the substance's reactivity. The reactivity of a substance may be caused by heating, burning, direct contact with other materials, or other conditions in use or storage.

Risk phrase:

describes the hazard type of a substance. These consist of the letter R followed by a number (for example R10 represents a 'Flammable' substance).

Safety phrase:

describes the safe handling of a substance. These consist of the letter S followed by a number (for example S15 indicates 'Keep away from heat').

Skin sensitiser:

a substance which causes a substantial portion of exposed people to develop a skin allergy after repeated exposure.

Solubility in water:

the maximum amount of solid that can be dissolved in a certain amount of water at a certain temperature (for example 12 g/L at 25°C).

Specific gravity:

takes into account the mass of a substance per unit of volume and compares it to the mass occupied by water for the same volume (and at a given temperature).

STEL (Short Term Exposure Limits):

the maximum permissible levels of exposure for periods of up to 15 minutes. The airborne concentration to which workers can be exposed to continuously for a short period of time without suffering from irritation.

TLV (Threshold Limit Values):

values that represent levels of exposure that may be tolerated without adverse health effects. They include STEL, TWA and ceiling limits.

TWA (Time-Weighted Average):

the maximum permissible levels for constant workplace exposure. The airborne concentration when calculated over a normal eight-hour working day, for a five-day working week.

Teratogenic:

a substance able to produce abnormalities in a developing foetus, that is, causing birth defects.

Toxicity:

capacity of a substance to produce transient or permanent damage to an organism.

U.N. (United Nations) number:

a four-digit number (preceded with U.N.) used internationally in transport to identify different classes of hazardous chemicals.

Vapour:

the gas phase of a liquid substance (for example evaporated steam above water).

Vapour pressure:

the pressure exerted by the vapour above a liquid. This is temperature dependent.

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