

**Section 1 - Identification of The Material and Supplier**

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**Chemical nature:** Dicloflop methyl is a 2-(4-aryloxyphenoxy)propionic acid derivative.  
**Trade Name** **Sabakem Dicloflop 375EC Selective Herbicide**  
**APVMA Code:** 69246  
**Product Use:** Agricultural herbicide for use as described on the product label.  
**Creation Date:** **November, 2013**  
**This version issued:** **November, 2013** and is valid for 5 years from this date.

**Section 2 - Hazards Identification****Statement of Hazardous Nature**

This product is classified as: Xn, Harmful. Xi, Irritating. N, Dangerous to the environment. Hazardous according to the criteria of SWA.

Not a Dangerous Good according to the Australian Dangerous Goods (ADG) Code. However, this is a C1 Combustible Liquid so must be stored and handled as specified in AS 1940 "The storage and handling of flammable and combustible liquids."

**Risk Phrases:** R22, R43, R65, R36/38, R50/53. Harmful if swallowed. May cause sensitisation by skin contact. Harmful: May cause lung damage if swallowed. Irritating to eyes and skin. Very toxic to aquatic organisms, may cause long-term adverse effects to the aquatic environment.

**Safety Phrases:** S2, S20, S23, S28, S37, S46, S60, S61, S24/25. Keep out of reach of children. When using, do not eat or drink. Do not breathe spray mists. After contact with skin, wash immediately with plenty of soap and water. Wear suitable gloves. If swallowed, contact a doctor or Poisons Information Centre immediately and show this SDS or label. This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/Safety Data Sheets. Avoid contact with skin and eyes.

**SUSMP Classification:** S5

**ADG Classification:** None allocated. Not a Dangerous Good under the ADG Code.

**UN Number:** None allocated



**GHS Signal word: DANGER.**

**HAZARD STATEMENT:**

- H227: Combustible liquid.
- H302: Harmful if swallowed.
- H304: May be fatal if swallowed and enters airways.
- H317: May cause an allergic skin reaction.
- H320: Causes eye irritation.
- H410: Very toxic to aquatic life with long lasting effects.

**PREVENTION**

- P102: Keep out of reach of children.
- P261: Avoid breathing fumes, mists, vapours or spray.
- P264: Wash contacted areas thoroughly after handling.
- P270: Do not eat, drink or smoke when using this product.
- P272: Contaminated work clothing should not be allowed out of the workplace.
- P280: Wear protective gloves, protective clothing and eye or face protection.

**RESPONSE**

- P362: Take off contaminated clothing and wash before reuse.
- P363: Wash contaminated clothing before reuse.
- P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor.

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P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P302+P352: IF ON SKIN: Wash with plenty of soap and water.  
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P332+P313: If skin irritation occurs: Get medical advice.  
P333+P313: If skin irritation or rash occurs: Get medical advice.  
P337+P313: If eye irritation persists: Get medical advice.  
P391: Collect spillage.  
P370+P378: In case of fire, use carbon dioxide, dry chemical, foam, water fog.

#### STORAGE

P405: Store locked up.

#### DISPOSAL

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

### Emergency Overview

**Physical Description & Colour:** Light to dark brown liquid.

**Odour:** Aromatic hydrocarbon odour.

**Major Health Hazards:** The acute oral LD<sub>50</sub> of Diclofop-methyl for rats ranged between 563-693 mg/kg (in sesame oil). The acute dermal LD<sub>50</sub> for female rats was greater than 2,000 mg/kg. The no effect level (NEL) for a 90-day feeding to rats was 12.5 mg/kg and 8 mg/kg for a 15-month feeding to dogs. The acute percutaneous LD<sub>50</sub> for rats was greater than 5,000 mg/kg. The acute inhalation toxicity for rats exposed to technical Diclofop-methyl was greater than 3.83 mg/l/hour. Rats exposed to a formulated product containing Diclofop-methyl had an oral LD<sub>50</sub> value of greater than 2,000 mg/kg. The acute dermal LD<sub>50</sub> for exposure to the same product was greater than 5,000 mg/kg. The inhalation LC<sub>50</sub> in rats for a 36% EC formulation of Diclofop-methyl over a four-hour period was 8.3 mg/L air. This product is irritating to eyes and skin, harmful if swallowed, possible skin sensitiser, if aspirated, may cause lung damage.

### Potential Health Effects

#### Inhalation:

**Short Term Exposure:** Available data indicates that this product is not harmful. However product may be mildly irritating, although unlikely to cause anything more than mild transient discomfort.

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

#### Skin Contact:

**Short Term Exposure:** Classified as a potential sensitiser by skin contact. Exposure to a skin sensitiser, once sensitisation has occurred, may manifest itself as skin rash or inflammation, and in some individuals this reaction can be severe. In addition product is a skin irritant. Symptoms may include itchiness and reddening of contacted skin. Other symptoms may also become evident, but all should disappear once exposure has ceased.

**Long Term Exposure:** May cause defatting and dermatitis.

#### Eye Contact:

**Short Term Exposure:** This product is an eye irritant. Symptoms may include stinging and reddening of eyes and watering which may become copious. Other symptoms may also become evident. If exposure is brief, symptoms should disappear once exposure has ceased. However, lengthy exposure or delayed treatment may cause permanent damage.

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

#### Ingestion:

**Short Term Exposure:** Significant oral exposure is considered to be unlikely. Because of the low viscosity of this product, it may directly enter the lungs if swallowed, or if subsequently vomited. Once in the lungs, it is very difficult to remove and can cause severe injury or death. However, this product is an oral irritant. Symptoms may include burning sensation and reddening of skin in mouth and throat. Other symptoms may also become evident, but all should disappear once exposure has ceased.

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

#### Carcinogen Status:

**SWA:** No significant ingredient is classified as carcinogenic by SWA.

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

**IARC:** No significant ingredient is classified as carcinogenic by IARC.

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### Section 3 - Composition/Information On Ingredients

Ingredients	CAS No	Conc, %	TWA (mg/m <sup>3</sup> )	STEL (mg/m <sup>3</sup> )
Diclofop-methyl	51338-27-3	375g/L	not set	not set
Liquid hydrocarbons	64742-95-6	534g/L	not set	not set
Other non hazardous ingredients	various	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 SWA TWA exposure value is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. The STEL (Short Term Exposure Limit) is an exposure value that may be equalled (but should not be exceeded) for no longer than 15 minutes and should not be repeated more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The term "peak" is used when the TWA limit, because of the rapid action of the substance, should never be exceeded, even briefly.

### Section 4 - First Aid Measures

#### General Information:

You should call The Poisons Information Centre if you feel that you may have been poisoned, burned or irritated by this product. The number is 13 1126 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have this SDS with you when you call.

**Inhalation:** No first aid measures normally required. However, if inhalation has occurred, and irritation has developed, remove to fresh air and observe until recovered. If irritation becomes painful or persists more than about 30 minutes, seek medical advice.

**Skin Contact:** Wash gently and thoroughly with warm water (use non-abrasive soap if necessary) for 10-20 minutes or until product is removed. Under running water, remove contaminated clothing, shoes and leather goods (e.g. watchbands and belts) and completely decontaminate them before reuse or discard. If irritation persists, repeat flushing and seek medical attention.

**Eye Contact:** Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 20 minutes or until the product is removed, while holding the eyelid(s) open. Take care not to rinse contaminated water into the unaffected eye or onto the face. Obtain medical attention immediately. Take special care if exposed person is wearing contact lenses.

**Ingestion:** If swallowed, do NOT induce vomiting. Wash mouth with water and contact a Poisons Information Centre, or call a doctor.

### Section 5 - Fire Fighting Measures

**Fire and Explosion Hazards:** This product is classified as a C1 combustible product. There is little risk of an explosion from this product if commercial quantities are involved in a fire. Violent steam generation or eruption may occur upon application of direct water stream on hot liquids. Vapours from this product are heavier than air and may accumulate in sumps, pits and other low-lying spaces, forming potentially explosive mixtures. They may also flash back considerable distances.

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

**Extinguishing Media:** Suitable extinguishing media are carbon dioxide, dry chemical, foam, water fog. Water fog or fine spray is the preferred medium for large fires. Try to contain spills, minimise spillage entering drains or water courses.

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

**Flash point:** 92°C  
**Upper Flammability Limit:** 7.0%  
**Lower Flammability Limit:** 0.6%  
**Autoignition temperature:** No data.  
**Flammability Class:** C1

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## Section 6 - Accidental Release Measures

**Accidental release:** In the event of a major spill, prevent spillage from entering drains or water courses. Wear full protective clothing including eye/face protection. All skin areas should be covered. See below under Personal Protection regarding Australian Standards relating to personal protective equipment. Suitable materials for protective clothing include rubber, PVC. Eye/face protective equipment should comprise as a minimum, protective goggles. If there is a significant chance that vapours or mists are likely to build up in the cleanup area, we recommend that you use a respirator. It should be fitted with a type G cartridge, suitable for agricultural chemicals. Otherwise, not normally necessary.

Stop leak if safe to do so, and contain spill. Absorb onto sand, vermiculite or other suitable absorbent material. If spill is too large or if absorbent material is not available, try to create a dike to stop material spreading or going into drains or waterways. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage, and dispose of promptly. Recycle containers wherever possible after careful cleaning. Refer to product label for specific instructions. After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. Full details regarding disposal of used containers, spillage and unused material may be found on the label. If there is any conflict between this SDS and the label, instructions on the label prevail. Ensure legality of disposal by consulting regulations prior to disposal. Thoroughly launder protective clothing before storage or re-use. Advise laundry of nature of contamination when sending contaminated clothing to laundry.

## Section 7 - Handling And Storage

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

**Storage:** Note that this product is combustible and therefore, for Storage, meets the definition of Dangerous Goods in some states. If you store large quantities (tonnes) of such products, we suggest that you consult your state's Dangerous Goods authority in order to clarify your obligations regarding their storage.

Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight. Make sure that the product does not come into contact with substances listed under "Incompatibilities" in Section 10. Some liquid preparations settle or separate on standing and may require stirring before use. 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<sup>3</sup>)

### STEL (mg/m<sup>3</sup>)

Exposure limits have not been established by SWA for any of the significant ingredients in this product.

The ADI for Diclofop-methyl is set at 0.002mg/kg/day. The corresponding NOEL is set at 0.25mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values taken from Australian ADI List, Dec 2012.

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

**Ventilation:** This product should only be used where there is ventilation that is adequate to keep exposure below the TWA levels. If necessary, use a fan.

**Eye Protection:** Protective glasses or goggles should be worn when this product is being used. Failure to protect your eyes may cause them harm. Emergency eye wash facilities are also recommended in an area close to where this product is being used.

**Skin Protection:** If you believe you may have a sensitisation to this product or any of its declared ingredients, you should prevent skin contact by wearing impervious gloves, clothes and, preferably, apron. Make sure that all skin areas are covered. See below for suitable material types.

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

**Respirator:** Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned above. Otherwise, not normally necessary.

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Eyebaths or eyewash stations and safety deluge showers should be provided near to where this product is being used.

### Section 9 - Physical And Chemical Properties:

<b>Physical Description &amp; colour:</b>	Light to dark brown liquid.
<b>Odour:</b>	Aromatic hydrocarbon odour.
<b>Boiling Point:</b>	>122°C at 100kPa
<b>Freezing/Melting Point:</b>	Below 0°C.
<b>Volatiles:</b>	No specific data. Expected to be low at 100°C.
<b>Vapour Pressure:</b>	Negligible at normal ambient temperatures.
<b>Vapour Density:</b>	No data.
<b>Specific Gravity:</b>	1.098
<b>Water Solubility:</b>	Emulsifiable.
<b>pH:</b>	No data.
<b>Volatility:</b>	No data.
<b>Odour Threshold:</b>	No data.
<b>Evaporation Rate:</b>	No data.
<b>Coeff Oil/water Distribution:</b>	No data
<b>Autoignition temp:</b>	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:** Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight.

**Incompatibilities:** strong acids, strong bases, strong oxidising agents.

**Fire Decomposition:** Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. 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.

**Polymerisation:** This product will not undergo polymerisation reactions.

### Section 11 - Toxicological Information

**Toxicity: Acute Toxicity:** The acute oral LD<sub>50</sub> of Diclofop-methyl for rats ranged between 563-693 mg/kg (in sesame oil). The acute dermal LD<sub>50</sub> for female rats was greater than 2,000 mg/kg. The no effect level (NEL) for a 90-day feeding to rats was 12.5 mg/kg and 8 mg/kg for a 15-month feeding to dogs. The acute percutaneous LD<sub>50</sub> for rats was greater than 5,000 mg/kg. The acute inhalation toxicity for rats exposed to technical Diclofop-methyl was greater than 3.83 mg/l/hour. Rats exposed to a formulated product containing Diclofop-methyl had an oral LD<sub>50</sub> value of greater than 2,000 mg/kg. The acute dermal LD<sub>50</sub> for exposure to the same product was greater than 5,000 mg/kg. The inhalation LC<sub>50</sub> in rats for a 36%EC formulation of Diclofop-methyl over a four-hour period was 8.3 mg/l air. Inhalation: a rate of 4,800 ml of a 5% solution in a 4 cubic meter container for four hours was studied. Deaths occurred with rabbits, but not with rats, guinea pigs or cats at this high rate. The 4-hr LC<sub>50</sub> for rats was 8,274 mg/m<sup>3</sup>. The acute dermal LD<sub>50</sub> for rabbits was reported to be 640 mg/kg. A Diclofop-methyl study on rabbits indicated no skin irritation at 24, 48 and 72 hours. Eye irritation in rabbits was found to be zero at 3, 7, or 24 hours. Other studies have reported eye irritation in rabbits as corneal opacity spots and conjunctival irritation in both rinsed and non-rinsed groups. Reversibility was observed in all but one animal in each group at 7 days. A 10% solution produced corneal opacity in some of the animals that was completely reversible in 72 hours. The acute dermal LD<sub>50</sub> for rabbits was found to be 640 mg/kg.

**Chronic Toxicity:** In 2-year feeding trials the NEL for rats was 20 mg/kg diet. The 15 month NEL for dogs was 8 mg/kg diet. Repeated absorption of chlorinated diphenyl ethers has resulted in liver damage in animals. Reproductive Effects The NEL in a three-generation study of technical Diclofop-methyl in rats was greater than 30 ppm.

**Teratogenic Effects:** In a rat teratology study, the teratogenic No-Observable-Effect-Level (NOEL) was 100 ppm, the highest dose tested. A rabbit teratology study reported a teratogenic NOEL of 3 mg/kg/day, the highest dose tested, and a NOEL for fetotoxicity of 3.0 mg/kg/day.

**Mutagenic Effects:** Ames assay testing revealed no mutagenic effects using four bacterial strains with and without enzyme activation in dose ranges up to 5 milligrams. A micronucleus test in mice indicated no mutagenic effect in a strain with known sensitivity. In a dominant lethal assay, the NOEL was greater than 100 mg/kg. No impairment in

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fertility of the male mice and no difference in the number of live and dead implantations in the female animals were noted.

**Carcinogenic Effects:** No information was available.

**Organ Toxicity:** No information was available.

**Fate in Humans and Animals:** Diclofop-methyl is metabolized in mammals via hydroxylation. Chlorophenoxy compounds are absorbed across the gut wall, lung and skin. They are not significantly stored in fat and urinary excretion is the principal route of elimination. Elimination as a conjugate is within 96 hours.

There is no data to hand indicating any particular target organs.

Diclofop-methyl is Classed by SWA as a potential sensitiser by skin contact.

## Classification Of Hazardous Ingredients

Ingredient	Risk Phrases
Diclofop-methyl	Conc>=25%: Xn; R22; R43
Aromatic Hydrocarbons	Conc>=10%: Xn; R65

## Section 12 - Ecological Information

Very toxic to aquatic organisms, may cause long-term adverse effects to the aquatic environment.

**Effects on Birds:** The acute oral LD<sub>50</sub> to bobwhite quail was 4,400 mg/kg; and greater than 10,000 mg/kg for Japanese quail. The eight-day dietary LC<sub>50</sub> value for coturnix quail was greater than 20,000 ppm; 13,000 ppm for bobwhite quail; and greater than 20,000 ppm for mallard ducks.

**Effects on Aquatic Organisms:** The 96-hour LC<sub>50</sub> for technical Diclofop-methyl in rainbow trout was 0.35 mg/l water. The 96-hour LC<sub>50</sub> in rainbow trout for a formulated product was 1.38 ppm; and 2.60 ppm for carp. The 48-hour LC<sub>50</sub> in the crustacean Daphnia for a formulated product was 4.03 ppm.

**Effects on Other Animals (Nontarget species):** The LD<sub>50</sub> for honeybees in a lab test of a formulated product indicated it was nontoxic at the highest dose tested; 48 kg/ha.

### ENVIRONMENTAL FATE

**Breakdown of Chemical in Soil and Groundwater:** Under aerobic conditions, Diclofop-methyl hydrolyses in a matter of days in the soil to 2-[4-(2',4'-dichlorophenoxy)phenoxy] propanoic acid which in turn is degraded relatively quickly with a half-life of 10 days in sandy soils and about 30 days in sandy clay soils. Small amounts of 4-(2,4 dichlorophenoxy)phenol are also produced. Field studies of application rates up to 3.4 kg active ingredient per hectare showed very low finite residues in soil. At harvest, small finite residues were present in the 0-7.5 cm soil level and rare small residues were present above the 15 cm level. These studies indicate that Diclofop-methyl does not leach downward or move laterally, and dissipates quickly in soil.

**Breakdown of Chemical in Surface Water:** No information was available.

**Breakdown of Chemical in Vegetation:** Diclofop-methyl is absorbed via the leaves and in damp soil there is slight absorption via the roots. The compound inhibits root growth.

## 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

**ADG Code:** This product is not classified as a Dangerous Good. No special transport conditions are necessary unless required by other regulations.

## Section 15 - Regulatory Information

**AICS:** All of the significant ingredients in this formulation are compliant with NICNAS regulations. The following ingredients: Diclofop-methyl, liquid hydrocarbons, are mentioned in the SUSMP.

## Section 16 - Other Information

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

### Acronyms:

**ADG Code** Australian Code for the Transport of Dangerous Goods by Road and Rail, 7th Edition

### SAFETY DATA SHEET

Issued by: Sabakem Pty Ltd

Phone: 1800 638 556 (all hours)

Poisons Information Centre: 13 1126 from anywhere in Australia, (0800 764 766 in New Zealand)

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

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

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

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

Please read all labels carefully before using product.

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

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## **SAFETY DATA SHEET**