

## Section 1 - Identification of The Material and Supplier

Crop Smart Pty Ltd  
2409/4 Daydream St  
Warriewood, NSW 2102

Phone: 1300 78 3481  
Fax: 1300 78 3491

**Chemical nature:** Water solution of bipyridilium derivatives with ingredients designed to make ingestion unpleasant and unlikely.

**Trade Name:** **Smart Combination 250 Herbicide**

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

**Creation Date:** **October, 2012**

**This version issued:** **September, 2017** and is valid for 5 years from this date.

**Poisons Information Centre: Phone 13 1126 from anywhere in Australia**

## Section 2 - Hazards Identification

### Statement of Hazardous Nature

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

Dangerous according to Australian Dangerous Goods (ADG) Code, IATA and IMDG/IMSBC criteria.

**SUSMP Classification:** S7

**ADG Classification:** Class 6.1: Toxic substances.

**UN Number:** 3016, BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC



### GHS Signal word: DANGER

#### HAZARD STATEMENT:

- H301: Toxic if swallowed.
- H311: Toxic in contact with skin.
- H315: Causes skin irritation.
- H317: May cause an allergic skin reaction.
- H320: Causes eye irritation.
- H331: Toxic if inhaled.
- H373: May cause damage to organs through prolonged or repeated exposure.
- H410: Very toxic to aquatic life with long lasting effects.

#### PREVENTION

- P260: Do not breathe fumes, mists, vapours or spray.
- P262: Do not get in eyes, on skin, or on clothing.
- P264: Wash contacted areas thoroughly after handling.
- P270: Do not eat, drink or smoke when using this product.
- P271: Use only outdoors or in a well ventilated area.
- P272: Contaminated work clothing should not be allowed out of the workplace.
- P280: Wear protective gloves, protective clothing and eye or face protection.
- P284: Wear respiratory protection.

#### RESPONSE

- P310: Immediately call a POISON CENTRE or doctor/physician.
- P314: Get medical advice or attention if you feel unwell.
- P363: Wash contaminated clothing before reuse.
- P301+P310: IF SWALLOWED: Immediately call a POISON CENTRE or doctor.
- P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P302+P352: IF ON SKIN: Wash with plenty of soap and water.
- P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

## SAFETY DATA SHEET

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: Not combustible. Use extinguishing media suited to burning materials. Water fog or fine spray is the preferred medium for large fires.

#### STORAGE

P405: Store locked up.

P403+P233: Store in a well-ventilated place. Keep container tightly closed.

#### DISPOSAL

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

### Emergency Overview

**Physical Description & Colour:** Dark blue liquid.

**Odour:** Obnoxious odour.

**Major Health Hazards:** Effects due to high acute exposure to paraquat may include excitability and lung congestion, which in some cases leads to convulsions, incoordination, and death by respiratory failure. If swallowed, burning of the mouth and throat often occurs, followed by gastrointestinal tract irritation, resulting in abdominal pain, loss of appetite, nausea, vomiting, and diarrhoea. Other toxic effects include thirst, shortness of breath, rapid heart rate, kidney failure, lung sores, and liver injury. Some symptoms may not occur until days after exposure. toxic by inhalation, in contact with skin and if swallowed, irritating to eyes, respiratory system and skin, possible skin sensitiser.

### Section 3 - Composition/Information on Ingredients

Ingredients	CAS No	Conc,%	TWA (mg/m <sup>3</sup> )	STEL (mg/m <sup>3</sup> )
Paraquat as the dichloride	4685-14-7	135g/L	0.1	not set
Diquat	2764-72-9	115g/L	0.5	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:** If inhalation occurs, contact a Poisons Information Centre. Urgent hospital treatment is likely to be needed. Remove source of contamination or move victim to fresh air. If breathing is difficult, oxygen may be beneficial if administered by trained personnel, preferably on a doctor's advice. DO NOT allow victim to move about unnecessarily. Symptoms of pulmonary oedema can be delayed up to 48 hours after exposure.

**Skin Contact:** Flush contaminated area with lukewarm, gently flowing water for at least 20-30 minutes, by the clock. DO NOT INTERRUPT FLUSHING. If necessary, keep emergency vehicle waiting (show paramedics this SDS and take their advice). Under running water, remove contaminated clothing, shoes and leather goods (e.g. watchbands and belts). If breathing has stopped, trained personnel should begin artificial respiration or, if the heart has stopped, cardiopulmonary resuscitation (CPR) immediately.

**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; rinse mouth thoroughly with water and contact a Poisons Information Centre, or call a doctor at once. Give activated charcoal if instructed.

### Section 5 - Fire Fighting Measures

**Fire and Explosion Hazards:** The major hazard in fires is usually inhalation of heated and toxic or oxygen deficient (or both), fire gases. There is little risk of an explosion from this product if commercial quantities are involved in a fire.

## SAFETY DATA SHEET

This product is likely to decompose only after heating to dryness, followed by further strong heating.

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

**Extinguishing Media:** 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:** Does not burn.

**Upper Flammability Limit:** Does not burn.

**Lower Flammability Limit:** Does not burn.

**Autoignition temperature:** Not applicable - does not burn.

**Flammability Class:** Does not burn.

## Section 6 - Accidental Release Measures

**Accidental release:** In the event of a major spill, prevent spillage from entering drains or water courses. Evacuate the spill area and deny entry to unnecessary and unprotected personnel. Wear full protective chemically resistant clothing including eye/face protection, gauntlets and self contained breathing apparatus. 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. Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned below (section 8).

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. Because of the toxicity of this product, special personal care should be taken in any cleanup operation. 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:** This product is a Scheduled Poison. Observe all relevant regulations regarding sale, transport and storage of this schedule of poison. Store in a cool, well ventilated area. Check containers periodically for leaks. Containers should be kept closed in order to minimise contamination. Make sure that the product does not come into contact with substances listed under "Incompatibilities" in Section 10. If you keep more than 10000kg or L of Dangerous Goods of Packaging Group III, you may be required to license the premises or notify your Dangerous Goods authority. If you have any doubts, we suggest you contact your Dangerous Goods authority in order to clarify your obligations. 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> )
Paraquat as the dichloride	0.1	not set
Diquat	0.5	not set

The ADI for Paraquat as the dichloride is set at 0.004mg/kg/day. The corresponding NOEL is set at 0.45mg/kg/day.

The ADI for Diquat is set at 0.002mg/kg/day. The corresponding NOEL is set at 0.25mg/kg/day. ADI means Acceptable Daily Intake; NOEL means No-observable-effect-level. Data from Australian ADI List, Sept 2011.

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.

## SAFETY DATA SHEET

**Ventilation:** This product should only be used in a well ventilated area. If natural ventilation is inadequate, use of a fan is suggested.

**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:** It is essential that all skin areas are adequately covered by impermeable gloves, overalls, hair covering, apron and face shield. 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.

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

### Section 9 - Physical and Chemical Properties:

<b>Physical Description &amp; colour:</b>	Dark blue liquid.
<b>Odour:</b>	Obnoxious odour.
<b>Boiling Point:</b>	Approximately 100°C at 100kPa.
<b>Freezing/Melting Point:</b>	Below 0°C.
<b>Volatiles:</b>	Water component.
<b>Vapour Pressure:</b>	2.37 kPa at 20°C (water vapour pressure).
<b>Vapour Density:</b>	As for water.
<b>Specific Gravity:</b>	1.150
<b>Water Solubility:</b>	Completely soluble in water.
<b>pH:</b>	5.0-7.0
<b>Volatility:</b>	No data.
<b>Odour Threshold:</b>	No data.
<b>Evaporation Rate:</b>	As for water.
<b>Coeff Oil/water Distribution:</b>	No data
<b>Autoignition temp:</b>	Not applicable - does not burn.

### Section 10 - Stability and Reactivity

**Reactivity:** This product is unlikely to react or decompose under normal storage conditions. However, if you have any doubts, contact the supplier for advice on shelf life properties.

**Conditions to Avoid:** This product should be kept in a cool place, preferably below 30°C. Keep containers tightly closed. Containers should be kept dry.

**Incompatibilities:** No particular Incompatibilities.

**Fire Decomposition:** This product is likely to decompose only after heating to dryness, followed by further strong heating. Combustion forms carbon dioxide, and if incomplete, carbon monoxide and possibly smoke. Water is also formed. May form hydrogen chloride gas, other compounds of chlorine. 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:** An information profile for Cypermethrin is available at <http://extoxnet.orst.edu/pips/ghindex.html>

**Acute toxicity:** Paraquat is highly toxic with reported oral LD<sub>50</sub> values of 110 to 150 mg/kg in rats, 50 mg/kg in monkeys, 48 mg/kg in cats, and 50 to 70 mg/kg in cows. The dermal LD<sub>50</sub> in rabbits is 236 to 325 mg/kg, indicating moderate toxicity by this route. The 4-hour inhalation LC<sub>50</sub> is greater than 20 mg/L for the technical grade of the compound. It causes skin and eye irritation in rabbits (severe for some of the formulated products) and also has caused skin sensitization in guinea pigs in some formulations. Persons with lung problems may be at increased risk from exposure. Many cases of illness and/or death have been reported in humans. The estimated lethal dose (via ingestion) for paraquat in humans is 35 mg/kg. A maximum of 3.5 mg/hour could be absorbed through the dermal or respiratory route without damage.

**Chronic toxicity:** Repeated exposures to paraquat may cause skin irritation, sensitization, or ulcerations on contact. In animal studies, rats showed no effects after being exposed for 2 years to paraquat at doses of 1.25 mg/kg/day. Dogs, developed lung problems after being exposed for 2 years at high doses (above 34 mg/kg/day). In a study of 30 workers spraying paraquat over a 12-week period, approximately one-half had minor irritation of the eyes and nose.

**Reproductive effects:** In a long-term rat study at doses up to 5 mg/kg/day, no adverse reproductive effects were reported. It is unlikely to cause reproductive effects in humans at expected exposure levels.

### SAFETY DATA SHEET

**Teratogenic effects:** Offspring of mice dosed with high doses of paraquat during the organ-forming period of pregnancy had less complete bone development than the mice given lower doses. The weight of evidence suggests that paraquat does not cause birth defects at doses which might reasonably be encountered.

**Mutagenic effects:** Paraquat has been shown to be mutagenic in microorganism tests and mouse cell assays. It was unclear what levels of exposure are necessary to produce these effects.

**Carcinogenic effects:** Mice fed paraquat dichloride for 99 weeks at high levels did not show cancerous growths. Rats fed high doses for 113 (male) or 124 weeks (female) developed lung, thyroid, skin, and adrenal tumours. Thus, the evidence regarding carcinogenic effects of paraquat is inconclusive.

**Organ toxicity:** Paraquat affects the lungs, heart, liver, kidneys, cornea, adrenal glands, skin, and digestive system.

**Fate in humans and animals:** Paraquat is not readily absorbed from the stomach, and is even more slowly absorbed across the skin. Oral doses of paraquat in rats are excreted mainly in the faeces, while paraquat injected into the abdomen leaves through urine. There is no data to hand indicating any particular target organs.

### Classification of Hazardous Ingredients

Ingredient	Risk Phrases
Paraquat As The Dichloride	>=10%Conc<20%: T+; R26; R21/22; R48/25
Diquat	>=10%Conc<20%: T+; R26; R48/25; R43

### Potential Health Effects

#### Inhalation:

**Short Term Exposure:** Available data shows that this product is very toxic, but symptoms are not available. In addition product is an inhalation irritant. Symptoms may include headache, irritation of nose and throat and increased secretion of mucous in the nose and throat. Other symptoms may also become evident, but they should disappear after exposure has ceased.

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

#### Skin Contact:

**Short Term Exposure:** Available data shows that this product is toxic, but further symptoms are not available. 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:** No data for health effects associated with long term skin exposure.

#### 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. Available data shows that this product is toxic, but further symptoms are not available. 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.

### Section 12 - Ecological Information

Very toxic to aquatic organisms, may cause long-term adverse effects to the aquatic environment. This product is biodegradable. It will not accumulate in the soil or water or cause long term problems.

**Effects on birds:** The compound is harmful to birds, with reported acute oral LD<sub>50</sub> values of 981 mg/kg and 970 mg/kg in bobwhite and Japanese quail, respectively. The reported 5- to 8-day dietary LC<sub>50</sub> value for the compound is 4048 ppm in mallards.

**Effects on aquatic organisms:** Paraquat is harmful to many species of aquatic life, including rainbow trout, bluegill, and channel catfish. The LC<sub>50</sub> for the aquatic invertebrate Daphnia pulex is 1.2 to 4.0 mg/L. In rainbow trout exposed for 7 days to paraquat, the chemical was detected in the gut and liver, but not in the meat of the fish. Aquatic weeds may bioaccumulate the compound. At high levels, paraquat inhibits the photosynthesis of some algae in stream waters.

**Effects on other organisms:** Paraquat is nontoxic to honey bees.

### SAFETY DATA SHEET

**Environmental Fate:**

**Breakdown in soil and groundwater:** Paraquat is highly persistent in the soil environment, with reported field half-lives of greater than 1000 days. Ultraviolet light, sunlight, and soil microorganisms can degrade paraquat to products which are less toxic than the parent compound. Paraquat does not present a high risk of groundwater contamination.

**Breakdown in water:** Paraquat will be bound to suspended or precipitated sediment in the aquatic environment, and may be even more highly persistent than on land due to limited availability of oxygen.

**Breakdown in vegetation:** Paraquat dichloride droplets decompose when exposed to light after being applied to maize, tomato, and broad-bean plants. Small amounts of residues were found in potatoes treated with paraquat as a desiccant, and boiling the potatoes did not reduce the residue.

### Section 13 - Disposal Considerations

**Disposal:** This product may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to separate the contamination in some way. Only if neither of these options is suitable, we suggest that you contact a specialist disposal company to arrange disposal. Disposal by untrained personnel may cause a dangerous incident.

### Section 14 - Transport Information

**UN Number:** 3016, BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC

**Hazchem Code:** 2X

**Special Provisions:** 61, 223, 274

**Limited quantities:** ADG 7 specifies a Limited Quantity value of 5 L for this class of product.

**Dangerous Goods Class:** Class 6.1: Toxic Substances.

**Packing Group:** III

**Packing Instruction:** P001, IBC03, LP01

Class 6 Toxic Substances shall not be loaded in the same vehicle or packed in the same freight container with Classes 1 (Explosives), 3 (Flammable Liquids where the Flammable Liquid is nitromethane), 5.1 (Oxidising Agents where the Toxic Substances are Fire Risk Substances), 5.2 (Organic Peroxides where the Toxic Substances are Fire Risk Substances), 8 (Corrosive Substances where the Toxic Substances are cyanides and the Corrosives are acids), Foodstuffs and foodstuff empties. They may however be loaded in the same vehicle or packed in the same freight container with Classes, 2.1 (Flammable Gases), 2.2 (Non-Flammable, Non-Toxic Gases), 2.3 (Toxic Gases), 3 (Flammable liquids, except where the flammable liquid is nitromethane), 4.1 (Flammable Solids), 4.2 (Spontaneously Combustible Substances), 4.3 (Dangerous When Wet Substances), 5.1 (Oxidising Agents except where the Toxic Substances are Fire Risk Substances), 5.2 (Organic Peroxides except where the Toxic Substances are Fire Risk Substances), 7 (Radioactive Substances), 8 (Corrosive Substances except where the Toxic Substances are cyanides and the Corrosives are acids), 9 (Miscellaneous Dangerous Goods)

### Section 15 - Regulatory Information

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

The following ingredients: Paraquat as the dichloride, Diquat, are mentioned in the SUSMP.

### Section 16 - Other Information

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

**Acronyms:**

<b>ADG Code</b>	Australian Code for the Transport of Dangerous Goods by Road and Rail (7 <sup>th</sup> edition)
<b>AICS</b>	Australian Inventory of Chemical Substances
<b>SWA</b>	Safe Work Australia, formerly ASCC and NOHSC
<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>NOS</b>	Not otherwise specified
<b>NTP</b>	National Toxicology Program (USA)
<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

## SAFETY DATA SHEET

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 "National Code of Practice for the Preparation of Safety Data Sheets" 2nd Edition [NOHSC:2011(2003)]  
Copyright © Kilford & Kilford Pty Ltd, September, 2017.

<http://www.kilford.com.au/> Phone (02)8321 8866

**SAFETY DATA SHEET**