

# PALLADIUM PLUS 915 EC

# SAFETY DATA SHEET

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** PALLADIUM PLUS 915 EC  
**Other identifier:** S-Metolachlor 915 EC  
**Recommended use:** Herbicide  
**Restrictions on use:** Agriculture

**Supplier:** Villa Crop Protection (Pty) Ltd.  
 Co. Reg. No.: 1992/002474/07  
 PO Box 10413  
 Aston Manor, 1630, South Africa

**Telephone:** (011) 396 2233  
**Fax:** (011) 396 4666  
**Website:** [www.villacrop.co.za](http://www.villacrop.co.za)

**Emergency telephone numbers:**  
**24 Hr Transport / Spill emergency no:**  
 (Hazcall24) +27 86 044 4411  
 (Client: Villa Crop Protection)  
 Griffon Poison Information Centre +27 82 446 8946  
 (Client: Villa Crop Protection)  
**Poisoning Emergency telephone numbers:**  
 Griffon Poison Information Centre +27 82 446 8946  
 Poisons Information Centre +27 861 555 777

## 2. HAZARDS IDENTIFICATION

UN GHS, Regulation EC 1272/2008 [EU-GHS/CLP] EU & SANS 10234:2008		
Hazard classes	Hazard categories	H-statements
<b>Health</b>		
Dermal	Skin Irrit. 3 Skin Sens. 1	H316 H317
Eye	Eye Dam. 1	H318
Inhalation	Acute Tox. 4	H332
<b>Environment</b>		
Aquatic acute	Aquatic acute 1	H400
Aquatic chronic	Aquatic chronic 1	H410

### The most important adverse effects:

#### Physiochemical effects:

None known.

#### Human health effects:

Causes serious eye damage (Eye Dam. 1).  
 Harmful if inhaled (Acute Tox. 4).

#### Label elements:



**Signal word:** Danger.

**Hazard statements:**

H316: Causes mild skin irritation.  
 H317: May cause an allergic skin reaction.  
 H318: Causes serious eye damage.  
 H332: Harmful if inhaled.  
 H400: Very toxic to aquatic life.  
 H410: Very toxic to aquatic life with long lasting effects.

**Precautionary statements:**  
 P261: Avoid breathing dust, fumes, mists, gas, vapours, or spray. (respiratory sensitization).  
 P264+P265: Wash hands thoroughly after handling. Do not touch eyes.  
 P271: Use only outdoors or in a well-ventilated area.  
 P272: Contaminated work clothing should not be allowed out of the workplace.  
 P273: Avoid release into the environment.  
 P280: Wear impervious rubber gloves and boots, protective clothing, and chemical safety goggles.  
 P302+P352: IF ON SKIN: Wash with plenty of water and non-abrasive soap.  
 P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
 P305+P354+P338: IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P317: Get medical help.  
 P332+P317: If skin irritation occurs: get medical help.  
 P333+P317: If skin irritation or rash occurs: Get medical help.  
 P391: Collect spillage.  
 P501: Dispose of contents/container in accordance with local regulations.

**Special labelling of certain mixtures:** None known.  
**Other hazards:** None known.  
**Toxicity:** Classification according to GHS: Category 4.

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

**Substance/Mixture:** Mixture.

### Composition:

Chemical Name	CAS	Conc. (m/v %)	Classification 1272/2008	EC
S-Metolachlor 97% TC	87392-12-9	84.75 %	Skin Sens. 1 (H317) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	
Benoxacor 95% (safener)	98730-04-2	<5 %	Skin Sens. 1 (H317) Aquatic Chronic 1 (H410)	
Dodecyl Benzene Sulphonate	26264-06-2	<10 %	Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Dam. 1 (H318) Aquatic Chronic 4 (H413)	

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## 4. FIRST AID MEASURES

Remove the victim from the area of exposure. Wash off remaining material with plenty of water. In the event of any complaints or symptoms, avoid further exposure and consult a doctor.

**Inhalation:** If vapours or mists have been inhaled, move victim to fresh air and remove source of contamination if safe to do so. The patient should be kept under observation. Obtain medical attention if symptoms persist.

**Skin:** Remove contaminated clothing, shoes and leather goods. Wash skin gently and thoroughly with cold water and non-abrasive soap. Obtain medical attention if irritation persists.

**Eyes:** Flush eyes with clean water for at least 15 – 20 minutes. Lift eyelids to facilitate irrigation. If present, remove contact lenses after 5 minutes and continue rinsing. **Seek medical attention immediately.**

**Ingestion: Do not induce vomiting.** Do not give anything by mouth to an unconscious person. Obtain medical attention if the patient feels unwell. Administer oxygen if breathing is difficult. If breathing has stopped, give artificial respiration.

**Anticipated acute effects:**

Causes mild skin irritation.

May cause an allergic skin reaction.

Causes serious eye damage.

Harmful if inhaled.

**Anticipated delayed effects:** None known.

**Most important symptoms/effects:** Irritant effects on skin and mucous membrane are the most common reactions. Large ingestions can cause nausea, vomiting, abdominal distress and diarrhoea.

Advice to physician: There is no specific antidote available. Treat symptomatically and supportively.

## 5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media:** Extinguish fires with carbon dioxide, dry powder or alcohol-resistant foam. Water spray can be used for cooling of unaffected stock, but avoid water coming in contact with the product.

**Unsuitable Extinguishing Media:** Water.

**Specific hazards:** In case of fire and/or explosion do not breath fumes.

**Special Fire Fighting Procedures:** Remove spectators from surrounding area. Isolate the fire area and evacuate all personnel downwind of the fire. Fight fire from maximum distance and use unmanned hose holder or monitor nozzles. Keep upwind. Avoid inhaling hazardous vapours and fumes from burning materials. Remove container from fire area if possible and without risk. Do not use high volume water jet, due to contamination risk. Do not scatter the burning material. Water can be used to cool unaffected containers but must be contained for later

disposal. Contain fire control agents for later disposal. Avoid pollution of waterways by run-off from the site.

**Personal protective equipment:** Wear NIOSH/MSHA approved self-contained breathing apparatus and full bunker gear.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Avoid contact with eyes and skin. Ventilate area of spill or leak, especially in contained areas.

**Protective equipment:** Refer to Section 8 for personal protective equipment to be worn during containment and clean-up of a spill involving this product.

**Emergency procedures:** Alert firefighting personnel, evacuate unprotected personnel and animals.

**Environmental Precautions:** Prevent spilled product from entering sewers, waterways, or ground water. This product is classified to be very toxic to aquatic organisms with long-term adverse effects in the aquatic environment. Any spillages or uncontrolled discharges into water courses should be reported immediately to the police and the Department of Water/Environmental Affairs.

**Methods and Materials for Containment:** Contain spilled product by diking area with sand, earth or silica gel.

**Methods and Materials for Clean-up:** Cover contained spill with an inert absorbent material such as sand, earth or other appropriate non-combustible material. Vacuum, scoop, or sweep up material and place the material into a clean, dry, sealable container. Label containers with the contents and dispose of according to local regulations. Do not place spilled material back in original container. Do not re-use spilled material. Collect washings and add to the drums already collected. Do not flush spilled material or washings into drains or waterways. To decontaminate the spill area, tools and equipment, wash with water and suitable detergent (i.e. organic solvent, detergent bleach or caustic). Add the solution to the drums already collected. Open burning or dumping of this material is prohibited. See section 13 for disposal considerations.

## 7. HANDLING AND STORAGE

**Handling:**

**Precautions for safe handling:** Avoid contact with eyes and skin. Ensure adequate ventilation during handling and use. Do not handle broken containers without protective equipment. Immediately clean up spills that occur during handling. Keep containers tightly closed when not in use. In the case of contact with the product refer to First Aid Measures – Section 4.

**General occupational hygiene:** Practice good hygiene when using this material. Wash hands before eating, drinking, chewing gum, smoking, using the toilet or applying cosmetics. Worker should shower at the end of each workday. Launder all clothing before it is re-used.

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**Storage:**

**Conditions for safe storage:** Keep out of reach of unauthorised persons, children and animals. Store in its original labelled container tightly closed, in an isolated, dry, cool and well-ventilated area. Avoid excess heat. Avoid cross contamination with other pesticides and fertilisers.

**Incompatible substances and mixtures:** Refer to product label.

**Packaging material:** Fluorinated plastic containers.

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

**Permissible concentration:** No occupational exposure limits has been determined for the significant ingredients in this product.

**Engineering Controls:**

It is essential to provide adequate ventilation. The measures appropriate for a particular worksite depend on how this material is used and on the extent of exposure. Local Exhaust: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs or other specified exposure limits. Local exhaust ventilation is preferred. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire, and other applicable regulations.

**Personal Protective Equipment:**

**Respiratory Protection:** Wear an organic cartridge respirator suitable for protection from mists/ vapours of pesticides if product will be used in an area that is not well ventilated.

**Hand Protection:** Employee must wear appropriate chemically resistant gloves e.g. nitrile rubber gloves to prevent contact with this mixture.

**Eye Protection:** Wear a face shield when handling the concentrate and when applying the product. The use of safety goggles is recommended if a face shield is not used.

**Skin and Body Protection:** The use of protective (impervious) clothing e.g. coveralls is recommended to prevent skin contact with this mixture.

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

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Light Brown emulsifiable liquid.

**Odour:** Aromatic Hydrocarbon odour.

**pH (1% aqueous dilution):** 4.6.

**Melting point:** Not available.

**Freezing Point:** Not available.

**Boiling Point:** Not available.

**Flash Point:** Not available.

**Flammability:** Non-flammable.

**Upper/lower explosion limits:** Not available.

**Vapour Pressure (mm Hg):** Not available.

**Relative Vapour Density:** Not available.

**Relative density:** 1.115 g/ml.

**Solubility:** Emulsifiable in water.

**n-octanol/water partition coefficient:** Not available.

**Auto-ignition temperature:** Not available.

**Decomposition temperature:** Not available.

**Viscosity:** Not available.

## 10. STABILITY AND REACTIVITY

**Chemical Stability:** The product is stable for 2 years at ambient temperature and pressure, under normal storage and handling conditions. Avoid storage under extreme temperatures and conditions. Store below 50°C, preferably below 30°C, and not for prolonged periods in direct sunlight.

**Reactivity:** None known.

**Possibility of Hazardous Reactions:** None known.

**Conditions to Avoid:** None known.

**Incompatible Materials:** None known.

**Hazardous Decomposition Products:** None known.

## 11. TOXICOLOGICAL INFORMATION

**ACUTE TOXICITY:**

Calculated according to GHS.

**Oral LD<sub>50</sub> (24h) rat** >2900 mg/kg.

**Dermal LD<sub>50</sub> (24 h) rabbit** >2200 mg/kg

**Inhalation LC<sub>50</sub> (4 h) rat** >3.2 mg/l.

**Skin Irritation/Corrosion:** Causes mild skin irritation.

**Eye Damage/Irritation:** Causes serious eye damage.

**Skin Sensitization:** May cause an allergic skin reaction.

**Respiratory Sensitization:** Not classified.

**Reproductive cell mutagenicity:** Not classified.

**Carcinogenicity:** Not classified.

**Reproductive toxicity:** Not classified.

**Specific target organ toxicity – single exposure:** Not classified.

**Specific target organ toxicity – repeated exposure:** Not classified.

**Aspiration hazard:** Not classified.

**Chronic Effects:** None known.

**POTENTIAL ADVERSE EFFECTS:**

**Inhalation:** This product is harmful if inhaled.

**Skin contact:** Causes mild skin irritation.

**Eye contact:** Due to inerts this product causes serious eye damage.

**Ingestion:** None known.

## 12. ECOLOGICAL INFORMATION

This product is very toxic to aquatic life with long lasting effects.

**ECOTOXICITY DATA: Active ingredient + Safener S-metolachlor:**

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<b>Fish:</b> LC <sub>50</sub> (96 h)	Rainbow trout Bluegill sunfish	1.23 mg/l 3.16 mg/l
<b>Benoxacor:</b> <b>Fish:</b> LC <sub>50</sub> (96 h)	Rainbow trout Carp Bluegill sunfish Catfish	2.4 mg/l 10 mg/l 6.5 mg/l 1.4 mg/l
<b>S-metolachlor:</b> <b>Daphnia:</b> EC <sub>50</sub> (48 h)		11.24 mg/l
<b>Benoxacor:</b> <b>Daphnia:</b> EC <sub>50</sub> (48 h)		11.5 mg/l
<b>S-metolachlor:</b> <b>Algae:</b> EC <sub>50</sub> (96 h)	<i>Scenedesmus obliquus</i> <i>Chlorella vulgaris</i> <i>Pseudokirchneriella subcapitata</i> <i>Navicula pelliculosa</i>	0.083 mg/l 0.0170 mg/l 0.056 mg/l 31 mg/l
ErC <sub>50</sub> (72 h)		
<b>Benoxacor:</b> <b>Algae:</b> EC <sub>50</sub> (72 h)	<i>Scenedesmus subspicatus</i> <i>Navicula pelliculosa</i>	0.63 mg/l 15.7 mg/l
EC <sub>50</sub> (96 h)		
<b>S-metolachlor:</b> <b>Birds:</b> Acute oral LD <sub>50</sub>	Bobwhite quail & Mallard ducks Mallard duck & Bobwhite quail	> 2510 mg/kg > 5620 ppm
Dietary LC <sub>50</sub> (8 d)		
<b>Benoxacor:</b> <b>Birds:</b> Acute oral LD <sub>50</sub>	Mallard ducks Bobwhite quail	> 2150 mg/kg > 2000 mg/kg
<b>S-metolachlor:</b> <b>Worms:</b> LC <sub>50</sub> (14 d)	Earthworms	570 mg/kg soil
<b>Benoxacor:</b> <b>Worms:</b> LC <sub>50</sub> (14 d)	Earthworms	>1000 mg/kg
<b>S-metolachlor:</b> <b>Bees:</b>		

(LD<sub>50</sub> µg/bee) (oral, contact) >85, >200 µg/bee.

**Benoxacor:**  
**Bees:**  
(LD<sub>50</sub> µg/bee) (oral and contact) >100 µg/bee.

**S-metolachlor:**  
**Plants:** Metabolism involves dechlorination and conjugation to glutathione S-transferases, followed by further degradation to polar, water-soluble, non-volatile metabolites.

**Benoxacor:**  
**Plants:** In plants, one major metabolite, which was also observed in animal metabolism studies, and several minor metabolites, were found.

**ENVIRONMENTAL EFFECTS:**  
**Persistence and degradability:**  
**S-metolachlor:**  
In aerobic soils, dissipates rapidly due to microbial activity, mainly by degradation to two major metabolites (oxanilic and sulfonic acids), the formation of non-extractable residues (3.5-44%) and its mineralisation to CO<sub>2</sub> (3-30%). Geomean DT<sub>50</sub> (lab, aerobic) 21.2 d (7-96 d, (198 soils); Geomean DT<sub>50</sub> (field) 30 d (6-49 d, 12 soil sites); DT<sub>90</sub> (field) 36-165 d (12 soils). In water-sediment systems, S-metolachlor dissipates with a DT<sub>50</sub> of 42-53 d in the whole system.

**Benoxacor:**  
In soil, benoxacor is rapidly dissipated via the formation of non-extractable residues (67-79% after 103 d down to 54-57% after 365 d) and is mineralized by microbial activity (up to 48-49% after 365 d). Soil DT<sub>50</sub> (20 °C) c. 1-5 d. Mean K<sub>oc</sub> 218 ml/g (42-340 ml/g), indicating medium mobility. In aquatic systems, benoxacor mainly dissipates via the formation of non-extractable residues in the sediment (64-77%) with a DT<sub>50</sub> of 2.4 d.

**Bio-accumulative Potential:** Not determined.

**S-metolachlor:**  
**Mobility in soil:** Adsorption (15 soils, pH 3.4-8.0, o.c 0.2-19.8%), mean K<sub>Foc</sub> 189 (61-369 l/kg,) K<sub>F</sub> 6.4 (0.3-44.8 l/kg) (15 soils, pH 3.4-8.0, o.c. 0.2-19.8%).

**Other adverse effects:** Not determined.

## 13. DISPOSAL CONSIDERATIONS

**Waste:** Open dumping or burning of this pesticide is prohibited. Waste resulting from the use of this product cannot be reused or re-processed. Never pour untreated waste or surplus product into public sewers or where there is any danger of run-off or seepage into water systems. Do not contaminate rivers, dams or any other water sources with the product or used containers. The product may be taken to a registered waste disposal site or incineration plant. Where possible, recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations.



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**Container:** TRIPLE RINSE THE EMPTY CONTAINER AS FOLLOWS: Invert the empty container over the spray or mixing tank and drain for at least 30 seconds after the flow has slowed down to dripping. Thereafter rinse the empty container three times in succession with one quarter of the container volume fresh water and decant the rinsate into the spray or mixing tank. Puncture the triple rinsed container and dispose of via an approved collector or recycler ([www.croplife.co.za](http://www.croplife.co.za)). Do not bury, burn or donate the container to any other parties that may use it as a container for food or beverages.

## 14. TRANSPORT INFORMATION

**UN Number:** 3082  
**Road Transport ADR/IRD:**  
 Class: 9  
 Packaging group: III  
 UN Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S.  
 (S-Metolachlor 915 g/l + Benoxacor 30.5 g/l)

**Maritime Transport IMDG/IMO:**  
 Class: 9  
 Packaging group: III  
 UN Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S.  
 (S-Metolachlor 915 g/l + Benoxacor 30.5 g/l)

**Marine Pollutant (Y/N):** Yes, Considered a marine pollutant.

**Air transport IATA/ICAO:**  
 Class: 9  
 Packaging group: III  
 UN Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S.  
 (S-Metolachlor 915 g/l + Benoxacor 30.5 g/l)

**Special/Environmental Precautions:** None known.  
**Transport in bulk** (according to MARPOL 73/78, Annex II and the IBC code): Not available.

## 15. REGULATORY INFORMATION

**Safety, health and environmental regulations/legislation for the mixture:**  
 OSHA 1993 Regulations for Hazardous Chemical Substances.  
**Relevant information regarding restrictions:** None.  
**EU regulation:** Regulation EC1272/2008 (EU-GHS/CLP)  
**Other national regulations:** None.

**Chemical Safety Assessment carried out?** No

## 16. OTHER INFORMATION

**Packaging:** Packed in 250, 500, 800 ml 1, 1.2, 1.5, 2, 2.5, 4, 4.5, 5, 5.5, 6.5, 8, 10, 15, 20, 25, 50, 200 litres fluorinated plastic containers and labelled according to the South African regulations and guidelines.

**Additional H-statement (s) (formulants)**

**H302:** Harmful if swallowed.  
**H315:** Causes skin irritation.  
**H413:** May cause long lasting harmful effects to aquatic life.

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

## END OF DOCUMENT

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 For detailed information on revisions, contact the Registration holder.