Technical data for plant protection product

MACY 505 WP

Mancozeb 465 g/кg + Cymoxanil 40 g/кg
Including 9.3 g/kg Zn and 93 g/kg Mn

FUNGICIDE

GROUP	**4**	**M**	**FUNGICIDES**

Supplier: AGRIA S.A., Bulgaria


PRODUCT DESCRIPTION

Combination of a systemic and contact fungicide in the form of water dispersible granule for control of early blight and late blight on tomato and potatoes; downy mildew in onions and cucurbit crops, spear rot in asparagus and heart rot in pineapple.

To avoid risks to human health and the environment, comply with the instructions for use.

SAFETY PRECAUTIONS

Operator protection

Engineering control of operator exposure must be used where reasonably practicable in addition to the following personal protective equipment:

- WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS) AND SUITABLE PROTECTIVE GLOVES when handling the concentrate.

- WEAR SUITABLE PROTECTIVE GLOVES when handling contaminated surfaces. However, engineering controls may replace personal protective equipment if a COSHH assessment shows they provide an equal or higher standard of protection.

- WASH CONCENTRATE from skin and eyes immediately.

- WASH HANDS AND EXPOSED SKIN before eating and drinking and after work.

- WHEN USING DO NOT EAT, DRINK OR SMOKE.

Environmental Protection

DO NOT CONTAMINATE surface waters or ditches with chemical or used container.

Storage and disposal

- KEEP IN ORIGINAL CONTAINER, tightly closed, in a safe place.

- WASH OUT CONTAINER THOROUGHLY, empty washings into spray tank and dispose of safely.

DIRECTIONS FOR USE

IMPORTANT: This information is approved as part of the Product Label. All instructions within this section must be read carefully in order to obtain safe and successful use of this product.

RECOMMENDATIONS FOR USE

Crop	Disease	Dose
Potato and Tomato	**Early blight** *(Alternaria somani)* **Late blight** *(Phytophthora infestans)*	**2.5 kg/ha in 300 - 600 l water**
Should be applied as part of a preventative disease management program. Apply up to 4 applications in sufficient water to ensure thorough coverage of foliage (for aerial application, apply 2.5 kg in a minimum of 50 L of water per hectare). Start application early - the first application for potatoes should be applied before the leaves of the plants touch within a particular potato row, and for tomatoes after transplanting on the field. Apply the following applications at 7-10-day intervals. Apply a contact fungicide, recommended for the control of late diseases (like Mancozeb, Zineb, Zineb + Copper oxychloride), 5-7 days after each application of **MACY 505 WP**. Do not apply within 3 days of harvest. When conditions are very favourable for late blight development, the shortest interval between applications and the higher dose are recommended.		
Onion crops	**Downy mildew** (*Peronospora destructor*) **Purple blotch** *(Alternaria porri)* **Neck rot** *(Botrytis allii)*	**2.5 kg/ha in 300 - 600 l water**
Should be applied as part of a preventative disease management program or as soon as the weather conditions are favorable for the disease development. Apply up to 3 applications in sufficient water to ensure thorough coverage of foliage in 10 – 14 days intervals. Do not apply within 14 days of harvest. When conditions are very favourable for disease development, the shortest interval between applications is recommended.		
Mango	**Anthracnose** *(Colletotrichum gloeosporioides)*	**2.5 kg/ha in 300 - 600 l water**
Should be applied as part of a preventative disease management program or as soon as the weather conditions are favorable for the disease development. Apply up to 4 applications in sufficient water to ensure thorough coverage of foliage in 10 – 14 days intervals. Do not apply within 14 days of harvest. When conditions are very favourable for disease development, the shortest interval between applications is recommended.		
Rice	**Neck rot** **(***Pyricularia oryzae***)**	**2.5 kg/ha in 300 - 600 l water**
Should be applied as part of a preventative disease management program or as soon as the weather conditions are favorable for the disease development. Apply up to 3 applications in sufficient water to ensure thorough coverage of foliage in 10 – 14 days intervals. Do not apply within 14 days of harvest. When conditions are very favourable for disease development, the shortest interval between applications is recommended.		

Cucurbit crops (cucumbers, melons, water melons, chayote, zucchini)	**Downy mildew** *(Pseudoperonospora cubensis)*	**2.5 kg/ha in 300 - 600 l water**
Should be applied as part of a preventative disease management program or as soon as the weather conditions are favorable for the disease development. Apply up to 4 applications in sufficient water to ensure thorough coverage of foliage. Start application when plants are in 4-6 leaves stage and repeat in 7 – 10-day intervals. Do not apply within 3 days of harvest. When conditions are very favourable for disease development, the shortest interval between applications and the higher dose are recommended.		
Cabbage crops	**Downy mildew** (*Peronospora parasitica)* **Alternaria leaf spot** (*Alternaria brassicicola)*	**2.5 kg/ha in 300 - 600 l water**
Should be applied as part of a preventative disease management program. Apply up to 4 applications in sufficient water to ensure thorough coverage of foliage (for aerial application, apply 2.5 kg in a minimum of 50 L of water per hectare). Start application early - the first application for potatoes should be applied before the leaves of the plants touch within a particular potato row, and for tomatoes after transplanting on the field. Apply the following applications at 7-10-day intervals. Apply a contact fungicide, recommended for the control of late diseases (like Mancozeb, Zineb, Zineb + Copper oxychloride), 5-7 days after each application of **MACY 505 WP**. Do not apply within 14 days of harvest.		
Pineapple	**Heart rot**	**10 – 14 kg/ha**
Apply at 2-14 months after planting by boom spraying as often as needed, based on incidence and severity. Do not apply within 60 days of harvest.		

APPLICATION

Add the required quantity of **MACY 505 WP** to a half-filled spray tank with continuous agitation, then add the remaining volume of water. Spray immediately after mixing and continue agitation during spraying.
Wash out the sprayer thoroughly with water and liquid detergent immediately after use. Finally wash out with water and drain.

COMPATIBILITY

The product is compatible with most used plant protection products and foliar fertilizers. Before preparing the relevant mixture – a preliminary consulting with a specialist is recommended.

RESISTANCE

To reduce the risk, plan a program of treatments using fungicides with different modes of action.

DRIFT

Avoid spray drift outside those areas being sprayed.

HAZARDS IDENTIFICATION

May cause an allergic skin reaction
Very toxic to aquatic life with long lasting effects

FIRST AID MEASURES

Following inhalation	Remove from exposure area to fresh air. Provide artificial breathing if the breathing has stopped Seek medical attention immediately.
Following skin contact	Remove contaminated clothing and shoes. Wash affected area with plenty of water. Seek medical attention if necessary. Wash contaminated clothing before next use
Following eye contact	Immediately rinse for at least 15 minutes with large quantity of drinking water while holding eyes open. Remove contact lenses, if present and rinse eyes with plenty of drinking water for 5 minutes. Remove contact lenses and continue rinsing for 15 more minutes. Immediately seek qualified medical advice.
Following ingestion	Never give anything by mouth to an unconscious person! Seek medical attention immediately. Don't induce vomiting. If the patient is conscious, rinse out mouth thoroughly and have the patient drink a glass of water.
Most important symptoms and effects, both acute and delayed	Possible manifestation of allergic symptoms such as urticaria, allergic edema. Possible changes in catarrhal mucous membrane of eyes and upper respiratory tract.
Indication of any immediate medical attention and special treatment needed	No specific antidote available. Treat symptomatically.

FIRE FIGHTING MEASURES

Suitable extinguishing media – Dry powder, carbon dioxide fire extinguishers. In case of large fires use water spray, foam extinguisher
Unsuitable extinguishing media – Water jet
Special hazards arising from the substance or mixture – In case of fire, along with other products of combustion, the smoke contains toxic gases – sulphur dioxide, nitrogen oxides, carbon monoxide and hydrogen sulphide.
Advice for firefighters - Full impervious coverall clothing. Self-containing breathing apparatus

ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For those staff which does not meet for emergency: Keep unnecessary personnel away.

For the persons responsible for emergency*:* Eliminate all ignition sources (flame or spark). Provide local and general exhaust ventilation. Use protective clothing and gloves, respiratory mask with an effective particulate filter, chemical goggles for eye protection

Environmental precautions: In case of accidental release take precautions to protect the surface and underground water, soil and sewage from contamination. Remove the sources of heat and flames. In case of spill into the sewage, surface water, ground water or soil notify the competent authorities immediately

Methods and material for containment and cleaning up

Absorb with an inert material – sand, zeolite. Use vacuum cleaning. Do not dispose the product and/or contaminated materials into the sewage systems, water sources or water bodies. Collect into an appropriate, labelled tightly sealed waste container. Store the container at an appropriate place for further treatment or disposal according to the national legislation.

HANDLING AND STORAGE

Precautions for safe handling

Precautionary measures: Use process enclosures, local exhaust ventilation and other suitable engineering controls to keep airborne levels below recommended exposure limits

Measures to prevent fire: If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit

Measures to prevent aerosol and dust: Regularly clean the premises and facilities wearing personal protective equipment and using professional fire-safe cleaning tools. Keep within the workspace only the quantities necessary for the normal working process. Containers / packaging must not be left open. Dust may form explosive mixtures with air. All the areas where accumulation of dust in dangerously high concentrations may occur have to be indicated and provided with fire extinguishing systems/tools. Keep away from sources of ignition (open flames, sparkles).

Advice on general occupational hygiene: Do not eat, drink or smoke when handling the product. In case of contamination change the work clothing. Avoid inhalation, ingestion and contact with eyes and skin. Do not handle this product without wearing the recommended personal protective clothing and equipment

Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions : Keep in unopened original packing. Keep in cool, dry, well-ventilated place far from sources of ignition. Prevent static electricity generation. Do not allow accumulation of dust in significant concentrations Keep out of reach of children.

EXPOSURE CONTROL/PERSONAL PROTECTION

Appropriate engineering controls

Structural, organizational and technical measures: Engineering controls and appropriate work processes must be used to eliminate or reduce worker and

environmental exposure in the areas where the substance is handled, transported, loaded, unloaded, stored and used. These measures must be adequate for the extent of the actual risk. Provide adequate local exhaust ventilation. Use specialized transfer system if available

Individual protection measures, such as personal protective equipment

Respiratory protection : In case of dust or aerosol formation use respirator with an approved filter. Half mask with a particle filter FFP2 (EN149).

Skin protection : **In case of prolonged and repeated exposure**
Wear chemical resistant apron.

Eye protection : Use safety glasses with side shields (according to EN 166).

Hand protection : **In case of short-term exposure:**
Single-use vinyl gloves.
In case of prolonged or frequently repeated exposure
Use nitrile-rubber gloves with a protection class of 5 or higher breakthrough time > 240 minutes thickness > 0.4 mm. .

PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Yellow powder
Odor	Sulfuric
Odor threshold	Not available
pH	6.0 – 8.0
Melting point/ Freezing point	>158 ºC (decompose before melting)
Initial boiling point and boiling range	Not applicable
Flash point	Not applicable
Evaporation rate	Not applicable
Flammability (solid)	Not flammable
Upper lower flammability or explosive limits	Not available
Vapor pressure	Not applicable
Vapor density	Not applicable
Bulk density	380 – 400 g/cm3
Solubility(ies)	In water - < 1.0 g/l at 20 ºC

	In organic solvents - Practically insoluble in organic solvents.Soluble in carbon disulfide, pyridine, chloroform and dimethyl sulfoxide.
Viscosity	Not applicable
Explosive properties	The product is not explosive
Oxidizing properties	Slight oxidizer

STABILITY AND REACTIVITY

Reactivity	No hazardous reactions when stored and handled according to instructions.
Chemical stability	Stable under normal conditions.
Conditions to avoid	Avoid storage at temperature > 35 °C in a confined place. Slow decomposition in presence of heat and moisture. Prevent heating of the material to avoid thermal decomposition.
Incompatible materials	Avoid contact with strong oxidants and strong acids and basis. Decomposes under alkaline and acidic conditions.

TOXICOLOGICAL INFORMATION

Acute oral toxicity in rats:
LD_{50} > 5000 mg/kg bw (rats, mancozeb)
LD_{50} > 960 mg/kg bw (rats, cymoxanil)

Acute dermal toxicity in rats:
LD50 > 2000 mg/kg bw (rats, mancozeb)
LD50 > 2000 mg/kg bw (rats, cymoxanil)

Inhalation toxicity in rats:
LC_{50} > 2.885 mg/L air 4h (rats, mancozeb)
LC50 > 5.6 mg/L air 4h (rats, cymoxanil)

Skin corrosion/ irritation	Not irritant to skin
Serious eye damage / irritation	Not irritant to eyes
Respiratory or skin sensitization	Not a skin sensitizer
Germ sell mutagenicity	No mutagenic activity
Carcinogenicity	Not classified as carcinogenic

ECOLOGICAL INFORMATION

Acute toxicity for aquatic organism
LC50 (96 h) for rainbow trout: *0.074 mg/l* (for mancozeb)
LC50 (96 h) for rainbow trout: *61mg/l* (for cymoxanil)
EC50 (48 h) Waterflea (*Daphnia magna*): *1.38 mg/l* (for mancozeb)
EC50 (48 h) Waterflea (*Daphnia magna*): *27 mg/l* (for cymoxanil)
EC50 (72h) (*Pseudokirchneriella subcapitata*) *0.1 mg/l* (for mancozeb)
EC50 (72h) algae *0.25* mg/l (for cymoxanil)

Toxicity for birds
LD50> 2000mg/kg (for mancozeb)
LD50> 2250mg/kg (for cymoxanil)

Toxicity for honeybees:
LD50 > *160µg/bee* contact (for mancozeb)
LD50 > *200 µg/bee* contact (for cymoxanil)

Toxicity for soil macro-organisms
LC50 > 299.1mg/kg soil for earthworms (for mancozeb)
LC50 = 2109 ppm (for cymoxanil)

Persistence and degradability	- water – hydrolyse rapidly with a half-life period < 2 days (for mancozeb) - soil – easily degradable, DT50 soil – 6-15 - soil – easily degradable, DT50 soil – 3.5 (for cymoxanil)
Bioaccumulative potential	Biodegradable - LogKow – 1.33 ; Log BCF – 0.32 (for mancozeb)
Mobility in soil	Low to moderate potential of mobility in soil - Log Koc>3.3 (for mancozeb) In soil mancozeb and cymoxanil rapidly degrades by hydrolysis. The half-life is 16 days
Results of PBT and vPvB assessment	The product does not contain any PBT or vPvB substance.

DISPOSAL

Waste treatment methods	**Disposal must be carried out** in accordance with the provisions of the national legislation, in an environmentally safe manner. **Recommended treatment method:** burning in appropriately licensed incinerators. **Collection of small product quantities:** Absorb with an inert material – sand, zeolite. Store in solid waste containers. The container should be clearly labelled, with content description, danger indication symbols, H- and P- statements. Store in well ventilated areas, until deposit to a licensed waste disposal company. The water used for contaminated surface washing should be collected for further treatment. Do not reuse the empty containers for any other purpose. Do not dispose into the sewage. Do not pollute natural water sources.
Waste code:	07 04 13* solid waste, containing dangerous substances 07 04 01* aqueous washing liquid and mother liquors
Waste code, packaging:	15 01 10* packaging containing residues of or contaminated by dangerous substances

TRANSPORT

UN-No. (ADR)	:	3077
UN proper shipping name	:	Environmentally hazardous substance, solid, n.o.s (Mancozeb, cymoxanil)
Transport hazard class(es)	:	9
Packing group	:	III
Environmental hazards	:	**Environmentally hazardous substance indication** ADR/RID/ IMDG-Code/ICAO-TI /IATA-DGR : **x yes** / □ no Marine pollutant**: x yes** / □ no
Marking	:	 

IMPORTANT NOTICE

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