



Technical data for plant protection product

Zineb 430 OD
43 ± 2.15% w/v Zineb
including 107.5 ± 4.3 g/L Zn

FUNGICIDE

GROUP	M	FUNGICIDES
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Supplier: Zenith Crop Sciences Bulgaria Ltd

Broad spectrum contact fungicide in the form of oil dispersion (OD) for control of fungal diseases in Bananas, rice, vegetables and other agricultural crops.

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

Zineb 350 OD is a next generation of Dithiocarbamate formulation, providing better stability and higher efficacy even by reduced dose. This is due to the special formulation process under which the Oil Dispersion is enriched with very small particle size of the active ingredients and additives such as oils and emulsifiers. Zineb 430 OD is a protective fungicide for prevention of disease infection. When exposed to water and UV light (after application of the spraying solution), Zineb breaks down to release toxicants that interfere with enzymes containing sulphhydryl group. The direct effect of Zineb 430 OD (Biological activity) upon core biochemical processes within the fungus results in inhibition of spore germination.

Zineb OD as a replacement for EC formulations

Nowadays EC are under a strong regulatory pressure to replace toxic and flammable solvents with a less toxic and non flammable solutions. Zineb 430 OD meets these needs: the oil content gives a favorable eco-toxicological profile guarantying a very high biological efficacy.

- No toxic and no flammable formulations
- Very high biological efficacy

Zineb OD as a replacement for SC formulations

Suspension concentrates are very safe formulation but the aqueous media is normally not ideal to boost pesticide’s biological efficacy. Growers, as standard practice, add tank mix adjuvants to guarantee an higher performance. Zineb 430 OD OD, with his oil content, guarantees the highest biological results. For water sensitive active ingredients OD technology represents the sole technical solution to liquid formulation.

- Very safe formulation along with high biological performance
- Ideal for active ingredients not stable in water

Zineb OD as an alternative to WG formulations

Water dispersible granules are very safe but are quite expensive. Optimal biological efficacy requires adjuvants. Zineb 430 OD with his oil content and optimal particle size distribution combines high efficacy with better cost.

- Better efficacy at lower cost

<p>ADVANTAGES Minimizing the risk of operator exposure No skin irritation Particles with optimum size for better coverage and best protective results. Easy to mix and handle. Optimum content of oil and emulsifiers Residual effect. - high rainfastness properties. Miticide mode of action Better stability during the storage/</p>	
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Formulation characteristics

Formulation type:	OD – Oil Dispersion
Appearance:	white liquid (Oil Dispersion)
Active ingredient content, % w/v:	43 ± 2.15% w/v Zineb
ETU content, %, not more than:	0.1
pH:	6 – 9
Density, at 20°C, g/cm ³ :	1.18 ± 0.02
Suspensibility, %:	not less than 90%
Wet sieve test on a 45 µm sieve, %, max residue:	1
Persistent foam, ml, max:	25
Heat storage:	no change in the phys-chemical characteristics after accelerated ageing test (14 days at + 54°C+/- 1°C)
Shelf life:	min. 2 years
Oxidizing properties:	no oxidizing properties

Classification and Labeling

Classification According Regulation (EC No 1272/2008 (CLP):

Not classified as dangerous

Hazard pictograms: Not required

Signal words: Not required

Hazard statements: Not required

Precautionary Statements:

P102 – Keep out of reach of children

P501 – Dispose of contents/container to local/regional/national/international regulations

EUH 401 – To avoid risks to human health and the environment, comply with the instruction for use

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. 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.

Self-protection of the first-aiders: Use Personal Protective Equipment

Self protection



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 body-covering working clothing. Wash regularly



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 - nitrile-rubber gloves with a protection class of 5 or higher breakthrough time > 240 minutes thickness > 0.4 mm.

FIREFIGHTING MEASURES

Suitable extinguishing media: Dry powder, carbon dioxide. Fight larger fires with water spray or alcohol-resistant foam.

Unsuitable extinguishing media: Water jet

Hazardous combustion products: 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: Remove immediately.

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.

Toxicological characteristics

Acute Oral Toxicity: LD₅₀ > 5200 mg/kg b.w. (rat)

Acute Dermal Toxicity: LD₅₀ > 6000 mg/kg b.w. (rat)

Acute Inhalation Toxicity: LC₅₀ > 20 mg/l air (4h, rat)

Skin corrosion/ irritation: Not irritating

Serious eye damage / irritation: Not irritating

Respiratory or skin sensitization: Not sensitizing

Germ cell mutagenicity: No mutagenic activity

Carcinogenicity: No carcinogenic potential

Reproductive toxicity: Not toxic for the reproduction

STOT – single exposure: Does not require classification

STOT – repeated exposure: Does not require classification

ECOLOGICAL INFORMATION

Waterflea (*Daphnia magna*): EC₅₀ = 40 mg/l (48 h)

Algae (*Pseudokirchneriella subcapitata*): Acute EC₅₀ = 0.51 mg/l growth (72 h)

Toxicity for birds (*Anas platyrhynchos*): Acute LD₅₀ > 2000 mg/kg

Toxicity for fish (*Oncorhynchus mykiss*): LC₅₀ = 20.8 mg/l (96 h)

Toxicity for honeybees: Contact acute 48 hour LD₅₀ = 13.1 µg/bee

Persistence and degradability: In soil: Zineb is subject to chemical breakdown (hydrolysis) and does not persist in soil. Its bioactive half-life in field is 16 days.

Within 4 months after a field planted with alfalfa was sprayed 99.7% of the applied Zineb was lost. **In water:** Zineb is practically insoluble in water. It is unstable in water and hydrolyses rapidly, producing ethylenediamine, ethylenethiourea and other degradation products.

Bioaccumulative potential: Bioconcentration factor: 2.1 (calc.)

Mobility in soil: Zineb adsorbs strongly to soil particles and usually does not move below the upper layer of soil.

Results of PBT and vPvB assessment: The product does not contain any PBT or vPvB substance

DISPOSAL CONSIDERATIONS

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: 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 INFORMATION

General information: Not classified as dangerous in the meaning of transport regulations

UN-No. (ADR): Not applicable

UN proper shipping name: Not applicable

Transport hazard class (es): Not applicable

Packing group: Not applicable

Environmental hazards: Not applicable

Marking: Not applicable

DIRECTIONS FOR USE

	Bananas
<u>Pest/Group of pests:</u>	Black sigatoka; Cercospora Leaf Spot,
<u>Product Application rate:</u>	2.0 l/ha
<u>Water application rate:</u>	ground - 200 – 600 L/ha aerial – 30 l/ha
<u>Time of application:</u>	Before infestation
<u>Maximum number of applications:</u>	apply at every 5-7 days
<u>Interval between applications in days:</u>	5-7
<u>Waiting period in days:</u>	Not requested
<u>Re-entry period in days:</u>	Treated crops should not be re-entered before spray deposits on leaf surfaces have completely dried
<u>Application Type:</u>	Foliar spraying

Leaf and fruit vegetables

<u>Pest/Group of pests:</u>	Mildew and leaf spot diseases
<u>Maximum application rate:</u>	2.0 l/ha
<u>Water application rate:</u>	200 – 1000 L/ha
<u>Time of application:</u>	Before infestation
<u>Maximum number of applications:</u>	8
<u>Interval between applications in days:</u>	7-10
<u>Waiting period in days:</u>	7 days
<u>Re-entry period in days:</u>	Treated crops should not be re-entered before spray deposits on leaf surfaces have completely dried
<u>Application Type:</u>	Foliar spraying

Rice

<u>Pest/Group of pests:</u>	Leaf scald (<i>Microdochium oryzae</i>) Sheath blight (<i>Rhizoctonia solani</i>)
<u>Maximum application rate:</u>	2.0 l/ha
<u>Water application rate:</u>	200 – 600 L/ha
<u>Time of application:</u>	Before infestation
<u>Maximum number of applications:</u>	3
<u>Interval between applications in days:</u>	7-10
<u>Waiting period in days:</u>	14 days
<u>Re-entry period in days:</u>	Treated crops should not be re-entered before spray deposits on leaf surfaces have completely dried
<u>Application Type:</u>	Foliar spraying

Soybean

<u>Pest/Group of pests:</u>	Rust (<i>Phakopsora pachyrhizi</i>)
<u>Maximum application rate:</u>	2.0 l/ha
<u>Water application rate:</u>	ground - 200 – 600 L/ha aerial – 30 – 50 l/ha
<u>Time of application:</u>	Before infestation
<u>Maximum number of applications:</u>	3
<u>Interval between applications in days:</u>	7-10
<u>Waiting period in days:</u>	14 days
<u>Re-entry period in days:</u>	Treated crops should not be re-entered before spray deposits on leaf surfaces have completely dried
<u>Application Type:</u>	Foliar spraying

Mango

<u>Pest/Group of pests:</u>	Anthracnose (<i>Colletotrichum gloeosporioides</i>)
<u>Maximum application rate:</u>	2.0 l/ha
<u>Water application rate:</u>	ground - 200 – 600 L/ha aerial – 30 – 50 l/ha
<u>Time of application:</u>	Before infestation
<u>Maximum number of applications:</u>	3
<u>Interval between applications in days:</u>	7-10
<u>Waiting period in days:</u>	14 days
<u>Re-entry period in days:</u>	Treated crops should not be re-entered before spray deposits on leaf surfaces have completely dried
<u>Application Type:</u>	Foliar spraying

Coffee

<u>Pest/Group of pests:</u>	Rust (<i>Hemileia vastatrix</i>)
<u>Maximum application rate:</u>	3.0 l/ha
<u>Water application rate:</u>	ground - 200 – 600 L/ha aerial – 30 – 50 l/ha
<u>Time of application:</u>	Before infestation
<u>Maximum number of applications:</u>	3
<u>Interval between applications in days:</u>	7-10
<u>Waiting period in days:</u>	14 days
<u>Re-entry period in days:</u>	Treated crops should not be re-entered before spray deposits on leaf surfaces have completely dried
<u>Application Type:</u>	Foliar spraying

Turf, Lawns, Golf Greens, Tennis Courts

<u>Pest/Group of pests:</u>	Helminthosporium
<u>Maximum application rate:</u>	2.0 l/ha
<u>Water application rate:</u>	400 - 800 L/ha
<u>Time of application:</u>	Before infestation
<u>Maximum number of applications:</u>	3
<u>Interval between applications in days:</u>	14 - 21
<u>Waiting period in days:</u>	not required
<u>Re-entry period in days:</u>	Treated crops should not be re-entered before spray deposits on leaf surfaces have completely dried
<u>Application Type:</u>	Foliar spraying

Beans

<u>Pest/Group of pests:</u>	Rust, Anthracnose
<u>Maximum application rate:</u>	2.0 l/ha
<u>Water application rate:</u>	400 - 800 L/ha
<u>Time of application:</u>	Before infestation
<u>Maximum number of applications:</u>	3
<u>Interval between applications in days:</u>	10 - 14
<u>Waiting period in days:</u>	7 days
<u>Re-entry period in days:</u>	Treated crops should not be re-entered before spray deposits on leaf surfaces have completely dried
<u>Application Type:</u>	Foliar spraying

Potato and Tomato

<u>Pest/Group of pests:</u>	Early blight, Late blight
<u>Maximum application rate:</u>	2.0 l/ha
<u>Water application rate:</u>	200 - 400 L/ha
<u>Time of application:</u>	Before infestation
<u>Maximum number of applications:</u>	3
<u>Interval between applications in days:</u>	7 - 10
<u>Waiting period in days:</u>	7 days
<u>Re-entry period in days:</u>	Treated crops should not be re-entered before spray deposits on leaf surfaces have completely dried
<u>Application Type:</u>	Foliar spraying

Carrots

<u>Pest/Group of pests:</u>	Cercospora leaf spot, Alternaria
<u>Maximum application rate:</u>	2.0 l/ha
<u>Water application rate:</u>	200 - 400 L/ha
<u>Time of application:</u>	Before infestation
<u>Maximum number of applications:</u>	3
<u>Interval between applications in days:</u>	7 - 10
<u>Waiting period in days:</u>	7 days
<u>Re-entry period in days:</u>	Treated crops should not be re-entered before spray deposits on leaf surfaces have completely dried
<u>Application Type:</u>	Foliar spraying

Cauliflower and Cabbages

<u>Pest/Group of pests:</u>	Cercospora leaf spot, Downy mildew
<u>Maximum application rate:</u>	2.0 l/ha
<u>Water application rate:</u>	200 - 400 L/ha
<u>Time of application:</u>	Before infestation
<u>Maximum number of applications:</u>	3
<u>Interval between applications in days:</u>	7 - 10
<u>Waiting period in days:</u>	7 days
<u>Re-entry period in days:</u>	Treated crops should not be re-entered before spray deposits on leaf surfaces have completely dried
<u>Application Type:</u>	Foliar spraying

Celery

<u>Pest/Group of pests:</u>	Cercospora leaf spot
<u>Maximum application rate:</u>	2.0 l/ha
<u>Water application rate:</u>	200 - 400 L/ha
<u>Time of application:</u>	Before infestation
<u>Maximum number of applications:</u>	3
<u>Interval between applications in days:</u>	7 - 10
<u>Waiting period in days:</u>	7 days
<u>Re-entry period in days:</u>	Treated crops should not be re-entered before spray deposits on leaf surfaces have completely dried
<u>Application Type:</u>	Foliar spraying

Cucurbits

<u>Pest/Group of pests:</u>	Downy mildew, Anthracnose
<u>Maximum application rate:</u>	2.0 l/ha
<u>Water application rate:</u>	200 - 400 L/ha
<u>Time of application:</u>	Before infestation
<u>Maximum number of applications:</u>	3
<u>Interval between applications in days:</u>	7 - 10
<u>Waiting period in days:</u>	7 days
<u>Re-entry period in days:</u>	Treated crops should not be re-entered before spray deposits on leaf surfaces have completely dried
<u>Application Type:</u>	Foliar spraying

Egg plants

<u>Pest/Group of pests:</u>	Early blight, Late blight
<u>Maximum application rate:</u>	2.0 l/ha
<u>Water application rate:</u>	200 - 400 L/ha
<u>Time of application:</u>	Before infestation
<u>Maximum number of applications:</u>	3
<u>Interval between applications in days:</u>	7 - 10
<u>Waiting period in days:</u>	7 days
<u>Re-entry period in days:</u>	Treated crops should not be re-entered before spray deposits on leaf surfaces have completely dried
<u>Application Type:</u>	Foliar spraying

Onions

<u>Pest/Group of pests:</u>	Downy Mildew, Purple Blotch, Blue Mould
<u>Maximum application rate:</u>	2.0 l/ha
<u>Water application rate:</u>	200 - 400 L/ha
<u>Time of application:</u>	Before infestation
<u>Maximum number of applications:</u>	3
<u>Interval between applications in days:</u>	7 - 10
<u>Waiting period in days:</u>	7 days
<u>Re-entry period in days:</u>	Treated crops should not be re-entered before spray deposits on leaf surfaces have completely dried
<u>Application Type:</u>	Foliar spraying

Ornamental crops

(Roses, Zinnias, Carnations, Chrysanthemum, Snapdragons, Gladioli)

<u>Pest/Group of pests:</u>	Rust, Leaf spot, Downy mildew, Anthracnose
<u>Maximum application rate:</u>	2.0 l/ha
<u>Water application rate:</u>	200 - 600 L/ha
<u>Time of application:</u>	Before infestation
<u>Maximum number of applications:</u>	3
<u>Interval between applications in days:</u>	7 - 10
<u>Waiting period in days:</u>	not required
<u>Re-entry period in days:</u>	Treated crops should not be re-entered before spray deposits on leaf surfaces have completely dried
<u>Application Type:</u>	Foliar spraying

Sweet and Chili peppers

<u>Pest/Group of pests:</u>	Early blight, Late blight
<u>Maximum application rate:</u>	2.0 l/ha
<u>Water application rate:</u>	200 - 400 L/ha
<u>Time of application:</u>	Before infestation
<u>Maximum number of applications:</u>	3
<u>Interval between applications in days:</u>	7 - 10
<u>Waiting period in days:</u>	7 days
<u>Re-entry period in days:</u>	Treated crops should not be re-entered before spray deposits on leaf surfaces have completely dried
<u>Application Type:</u>	Foliar spraying

Strawberry

<u>Pest/Group of pests:</u>	Leaf blight
<u>Maximum application rate:</u>	2.0 l/ha
<u>Water application rate:</u>	400 - 600 L/ha
<u>Time of application:</u>	Before infestation
<u>Maximum number of applications:</u>	3
<u>Interval between applications in days:</u>	7 - 10
<u>Waiting period in days:</u>	7 days
<u>Re-entry period in days:</u>	Treated crops should not be re-entered before spray deposits on leaf surfaces have completely dried
<u>Application Type:</u>	Foliar spraying

Tobacco

<u>Pest/Group of pests:</u>	Blue Mould
<u>Maximum application rate:</u>	2.0 l/ha
<u>Water application rate:</u>	400 - 600 L/ha
<u>Time of application:</u>	Before infestation
<u>Maximum number of applications:</u>	3
<u>Interval between applications in days:</u>	7 - 10
<u>Waiting period in days:</u>	not required
<u>Re-entry period in days:</u>	Treated crops should not be re-entered before spray deposits on leaf surfaces have completely dried
<u>Application Type:</u>	Foliar spraying

	Citrus
Pest/Group of pests:	Black Spot, Speckled Blotch, Scab, Melanose, Anthracnose, Brown Citrus Rust Mite, Citrus Rust Mite, Citrus Bud Mite
<u>Maximum application rate:</u>	2.0 l/ha
<u>Water application rate:</u>	400 - 600 L/ha
<u>Time of application:</u>	Before infestation
<u>Maximum number of applications:</u>	3
<u>Interval between applications in days:</u>	7 - 10
<u>Waiting period in days:</u>	not required
<u>Re-entry period in days:</u>	Treated crops should not be re-entered before spray deposits on leaf surfaces have completely dried
<u>Application Type:</u>	Foliar spraying

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.

Always shake the bottle well before use.

Half fill the tank with water and switch on agitation. Always make sure the additions are fully mixed until dissolved or dispersed before adding the next product.

1 – Add water conditioners, if needed. Add granules powders and mix well. Pre disperse if possible (WP, DG).

2 – Add SC and SE formulations and other flowables.

3 – Add Zineb 430 OD

4 – Add EC formulations

5 – Add water soluble: liquids and solids. (SL, SP).

Provided these guidelines are followed almost all tank mixes are physically compatible, with continuous agitation. If agitation fails, for any reason, then it is essential to clean out the tank immediately.

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.

NOTICE

The information presented in this technical data sheet is based on our knowledge of the product at the date of issue and is intended to provide only general health and safety guidance. This technical data sheet complements the technical specification / label / leaflet of the product but does not replace them. The users of this product should make their own assessment of its suitability for the intended purposes prior to use. No liability will be accepted for any injury, loss or damage resulting from any failure to take account of information or advice contained in this safety data sheet or other available technical usage literature.