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## Contans®WG

### DIRECTIONS FOR USE

#### General Information

Contans®WG is a water dispersible granule for the reduction/control of *Sclerotinia sclerotiorum* and *Sclerotinia minor* in the soil.

Contans®WG contains  $1 \times 10^9$  active spores / gram of the soil fungus *Coniothyrium minitans*, dried on glucose.

Contans®WG is a biological fungicide with a specific antagonistic action against the resting survival structures (sclerotia) of the plant pathogens *Sclerotinia sclerotiorum* and *Sclerotinia minor*.

Contans®WG is intended for the use as part of an Integrated Pest Management (IPM) system. When used in conjunction with good cultural management practices and as part of a complete disease control program, Contans®WG reduces/controls soil infestations of *Sclerotinia sclerotiorum* and *Sclerotinia minor*.

Contans®WG can be used primary as a soil treatment product against mentioned *Sclerotinia* species, regardless to the crop, in the greenhouse and in the open field.

#### Mode of action

The spores of *C. minitans* germinate in the moist soil. The mycelium of *C. minitans* attacks the mycelium and the resting survival structures (sclerotia) of the pathogens *Sclerotinia sclerotiorum* and *Sclerotinia minor* in the soil and destroys the sclerotia within three months.

#### Condition:

The effectiveness of Contans®WG depends on soil-temperature (optimal 12 – 25 °C) and on their being sufficient moisture in the soil.

Even at soil temperatures of 5 °C the sclerotia of the pathogen are fully infested by *C. minitans* within 110 days after a treatment with Contans®WG. If the soil temperature decreases below 0 °C or rises above 27 °C, *C. minitans* stops its activity and rests in the soil, but the fungus will not die. Once the temperature returns to a temperature between 1 and 27 °C *C. minitans* will continue to parasitize the sclerotia.

This enables an application of Contans®WG over cold seasons or before the hot seasons in zones of warmer climate.

The optimum pH-value of the soil for Contans®WG is between 4.5 and 8.0.

Contans®WG can be used in the soil for **all crops** susceptible to *Sclerotinia sclerotiorum* and *Sclerotinia minor* infection. Contans®WG has shown effectiveness in disease suppression for the following susceptible crops and ornamentals: canola, oilseed rape, soya beans, lettuce, gerbera and chrysanthemums. Other crops also known to be susceptible to *Sclerotinia sclerotiorum* and *Sclerotinia minor* infection include, but are not limited to: asparagus, beans (dry), cabbage, carrots, celery, chickpeas, cucumbers, lentils, peanuts, peas, peppers, potatoes, safflowers, snap beans, sunflowers, tobacco, tomatoes, and watermelon. Because the active ingredient in Contans®WG is exempt from the requirement of a tolerance for residues in and on all food commodities, this product can be used in the soil of any crop and there are no rotational crop restrictions.

#### Mixing Directions

Determine the volume of water needed to provide thorough coverage of the soil in the treatment area. Typically, 200 to 500 litres, in horticulture up 1000 litres of water per hectare are sufficient. The amount of water needed will depend on crop size, weather, spray equipment and local experience. Partially fill the spray tank with clean water and begin agitation. Add the specified amount of Contans®WG to the tank (consult application directions below). Finish filling the tank to the desired volume that provides maximum coverage. Maintain agitation. Do not allow spray mixture to stand overnight or for prolonged periods.

Do not tank mix Contans®WG with pesticides, acids, alkalines or any product that attacks organic material.

#### Application Directions

Contans®WG is applied by spraying the soil surface (or crop residues) and then incorporating the soil surface into the upper soil layer. Thorough spray coverage is needed to provide a uniform deposit of Contans®WG on the soil. Contans®WG may be applied in conventional spray equipment with quantities of water sufficient to provide thorough coverage of the soil. Maintain agitation continuously while spraying. For tractor-mounted sprayers, use of a spray boom equipped with fan nozzles provides enhanced coverage.

Contans®WG is less effective in soils with soil-temperatures over 28 °C. For warm weather locations, only apply as a pre-plant treatment in the fall for a spring planting.

### Pre-plant - Application

Apply Contans®WG at a rate of 2 to 6 kg per hectare, three to four months prior to the onset of disease, to allow for the active ingredient to reduce inoculum loads of sclerotia in the soil. For example, apply Contans®WG in the fall for a spring planting. Once the product has been applied onto the soil, the treated soil surface must be incorporated into the upper soil layer by means of rotating or other similar equipment. **Contans®WG should be incorporated as thoroughly and uniformly as possible**, to a depth of 5 to 20 cm. In Oilseed rape Contans®WG can be also applied prior to or during rainfall (20 – 30 mm within 24 hours), which will drench the spores down to max. 3 cm. Treated soils should not, however, be plowed before planting the susceptible crop so as to avoid allowing untreated sclerotia from lower soil layers to infect the top soil. If equipment used will incorporate Contans®WG to a depth greater than 20 cm, increase the application rate.

Contans®WG should be applied at least **three months prior to an anticipated Sclerotinia outbreak**.

This means on crops, that are infested directly by mycelium, the application should take place at least 3 months prior to planting (e.g. lettuce, endive, parsley, chicory).

On host plants (e. g. cucumber, beans, peanuts, canola etc.), on which infection occurs from ascospores, the soil can also be treated just before planting, provided that the earliest occurrence of infection is likely 3 months after planting or sowing of the host plants.

This means Contans®WG should be applied at least **three months prior to an anticipated Sclerotinia outbreak**, so as to allow for the active ingredient to destroy the sclerotia in the soil, before the sclerotia are able to produce fruiting bodies, which ultimately eject ascospores.

### Rate of application:

The rate of application depends on the depth of incorporation.

Depth of incorporation	0-10 cm	10-20 cm
Greenhouses	4 kg per ha	6 kg per ha
Open field	2-4 kg per ha *	4-6 kg per ha

\*) If applied consequently also as post harvest treatment or in an application program, the rate can be reduced to 1 kg, depending on experienced disease pressure.

### Postharvest - Application

Apply Contans®WG at a rate of 1 to 2 kg per hectare to harvest residues prior to a mechanical soil treatment or prior to rainfall (20 mm). In some regions, where the next mechanical soil treatment is not done until spring, Contans®WG should be applied then. It is recommended to choose, if possible - a relatively cold and cloudy period. A postharvest treatment of the soil aims to destroy freshly build up inoculum loads by the latest susceptible crop and thus reduce disease pressure for the next susceptible crop in the rotation.

### Spraying Equipment

Conventional spraying equipment can be used for spraying. **Application equipment must be free of residues of pesticides and fungicides, acids, alkalines or any product that attacks organic material.**

### Agricultural labors to incorporate Contans®WG

Agricultural machines with **rotating tools** (i.e. rotary hoe).

### Minimum waiting periods

There is no risk of phytotoxic effects on succeeding crops, thus there is no recommended waiting period.

### Storage

Store in a dry, cool place out of direct sunlight and away from heat sources at approximately **4 °C**. Keep from overheating. At 4 °C Contans®WG degrades slowly over time and has a shelf-life of at least six months.

### Disposal

Residues of the active agent can be disposed of by spraying onto waste land or onto soil, together with organic manure or with liquid nitrogen fertilisers. Empty containers have no toxic residue and can be disposed with other waste products.

### Environmental Toxicology

Owing to the biological mode of operation, there are no adverse effects on the soil ecosystem or on the environment in general.

### WARRANTY

Prophyta Biologischer Pflanzenschutz GmbH warrants that the product conforms to the description on the label and is reasonably fit for the purposes set forth on the label, when used according to directions under normal use conditions. Neither this warranty nor any other warranty of merchantability or fitness for a particular purpose, expressed or implied, extends to the use of this product contrary to the label instructions; the buyer assumes the risk of any such uses.