

BRAVADO®

A soluble concentrate containing 500g/l chlorothalonil for disease control in wheat and barley.

SAFETY PRECAUTIONS

OPERATOR PROTECTION

WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS), SUITABLE PROTECTIVE GLOVES AND FACE PROTECTION (FACESHIELD) when handling the concentrate.

WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS), AND SUITABLE PROTECTIVE GLOVES when handling contaminated surfaces.

WASH ALL PROTECTIVE CLOTHING thoroughly after use especially the insides of gloves.

WASH SPLASHES from skin or eyes immediately.

DO NOT BREATHE SPRAY.

WASH HANDS AND EXPOSED SKIN before eating, drinking or smoking and after work.

FOR USE BY TRACTOR MOUNTED/TRAILED SPRAYER ONLY

To protect aquatic organisms respect an unsprayed buffer zone of 5m to surface water bodies

ENVIRONMENTAL PROTECTION

Do not contaminate water with the product or its container. Do not clean application equipment near surface water. Avoid contamination via drains from farmyards and roads.

Users must not allow direct spray from horizontal boom sprayers to fall within 5m of the top of the bank of a static or flowing waterbody or within 1m of the top of a ditch which is dry at the time of application.

STORAGE AND DISPOSAL

KEEP IN ORIGINAL CONTAINER tightly closed in a safe place.

RINSE CONTAINER THOROUGHLY by using an integrated pressure rinsing device or manually rinsing three times. Add the washings to the sprayer tank at the time of filling and dispose of container safely.

DO NOT RE-USE EMPTY CONTAINERS.

Net Contents: 10 litres e

For Batch Number and Manufacturing Date see container

Manufactured in the E.U.



Contains 500g/l (40.4% w/w) chlorothalonil as a suspension concentrate.



WARNING.

Suspected of causing cancer.

May cause an allergic skin reaction.

Causes serious eye irritation.

Harmful if inhaled.

May cause respiratory irritation.

Very toxic to aquatic life with long lasting effects.

Keep out of reach of children.

Obtain special instructions before use.

Wear protective gloves/protective clothing/eye protection/face protection.

IF ON SKIN: Wash with plenty of soap and water.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF exposed or concerned: Get medical advice/attention.

Collect spillage.

Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non-hazardous waste.

Contains 1,2-benzisothiazolin-3-one. May cause an allergic reaction

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

Authorisation Holder

Novastar Link Limited, Suite 4, Berkeley House, Whitbarrow Road, Lymm, Cheshire WA13 9AR, England

Marketing Company

Terrachem Ltd, Mayflower Logde, Croghan, Boyle, Co. Roscommon
Tel. 087-2547534 Email. info@terrachem.ie

Poison Centre 01-8092166

PCS No. 06013

BRAVADO[®]

FOR USE ONLY AS A
PROFESSIONAL FUNGICIDE

IMPORTANT INFORMATION

Crop:	For use on winter and spring wheat, durum wheat, rye and triticale; and winter and spring barley
Maximum individual dose:	2.0 L/ha
Maximum Total dose:	4.0 L/ha
Maximum number of treatments:	2 per crop
Latest time of application:	Wheat, Rye, Triticale: Before GS71 (grain watery ripe stage) Barley: Before beginning of flowering/first anthers visible (GS 61)

READ THE LABEL BEFORE USE. USING THIS PRODUCT IN A MANNER THAT IS INCONSISTENT WITH THE LABEL MAY BE AN OFFENCE. FOLLOW THE CODE OF PRACTICE FOR USING PLANT PROTECTION PRODUCTS.

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.

DISEASES CONTROLLED

BRAVADO can be used to control the following diseases: It is particularly important to achieve a good spray coverage of all foliage.

Disease	Wheat	Barley	Rye	Triticale
Septoria leaf blotch <i>(Mycosphaerella graminola)</i>	MC	-	MC	MC
Glume blotch <i>(Phaeosphaeria nodorum)</i>	MC	-	MC	-
Leaf scald <i>(Rhynchosporium secalis)</i>	-	MC	MC	MC

CROP SPECIFIC INFORMATION

WHEAT, RYE, TRITICALE

Rate of use:

Apply 2.0 litres in 200 litres of water per hectare as a MEDIUM spray (as defined by BCPC) at a pressure of at least 2.0 bar.

Timing:

Growth stage 30–32 (2nd node detectable) BRAVADO may be applied once up to maximum individual dose of 2.0 l/ha if Septoria is evident and/or conditions are favourable for the spread of the disease. This may give protection against the spread of Septoria.

Growth stage 33–65 BRAVADO will provide protection against Septoria on the flag leaf and ear and should normally be applied between the third node detectable stage (GS33) and the mid-flowering stage (GS65). For best results apply up to 2.0 l/ha between the third node detectable stage (GS33) and the flag leaf fully emerged stage (GS39).

The activity of BRAVADO against Septoria may be reduced in the presence of serious mildew infection. If mildew is also a problem, combined use of BRAVADO and a suitable mildew fungicide is recommended (see Compatibility section).

BARLEY

Rate of use:

Apply 2.0 litres in a minimum of 200 litres of water per hectare as a MEDIUM spray (as defined by BCPC) at a pressure of at least 2.0 bar.

Timing:

Apply the first application as soon as disease is first detected in the crop. A second application may be made before beginning of heading (GS51) if severe Rhynchosporium pressure occurs or if there is a risk of leaf spotting.

MIXING

Preparation of Sprayer

Ensure that the sprayer is clean and correctly set to give even application at the required volume. Half fill the spray tank with clean water and start agitation. Slowly invert the container several times and add the required amount of BRAVADO to the sprayer using a filling device (e.g. induction hopper) or by direct addition to the spray tank. Rinse the container clean. Preferably use an integrated pressure rinsing device or manually rinse three times. Add washings to the sprayer at the time of filling. Agitate during completion of filling and while spraying. Do not leave in spray tank for long periods without using.

Volume of Water and Spraying

See individual crop recommendations for recommended water volume.

To protect aquatic organisms respect an unsprayed buffer zone of 5m to surface water bodies

After Use

Dispose of rinsed container according to the local Code of Practice.

COMPATIBILITY

BRAVADO should be used as part of an integrated fungicide programme. Consult your distributor for details.

Always consult and comply with the recommendations of the partner product. Add each product separately and ensure each product is fully mixed with the spray water before adding the next product.

NOVASTAR LINK Ltd Conditions of Supply

All goods supplied by us are of high grade and we believe them to be suitable but, as we cannot exercise control over their storage, handling, mixing or use, or the weather conditions before, during or after application which may affect the performance of the goods, all conditions and warranties, statutory or otherwise, as to the quality or fitness for any purpose of our goods are excluded. No responsibility will be accepted by us or re-sellers for any failure in performance, damage or injury whatsoever arising from their storage, handling, application or use. These conditions cannot be varied by our staff or agents whether or not they supervise or assist in the use of such goods.

PCS No. 06013

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

BRAVADO

1.2 Relevant identified uses of the substance or mixture and uses advised against

Professional use agricultural fungicide

1.3 Details of the supplier of the safety data sheet

Novastar Link Ltd

17 St Ann's Square, Manchester, M2 7PW

Tel: +44 (0) 161 832 4841 Fax: +44 (0) 161 835 2539

Email: support@novastar.com

1.4 Emergency telephone number

IN CASE OF TOXIC EMERGENCY

Poisons Centre: Telephone 01-8092166

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification in accordance with Regulation (EC) No 1272/2008:

Skin Sens. 1; H317: May cause an allergic skin reaction

Eye Irrit. 2; H319: Causes serious eye irritation

Acute Tox. 4; H332: Harmful if inhaled

STOT SE 3; H335: May cause respiratory irritation

Carc. 2; H351: Suspected of causing cancer

Aquatic Acute 1; H400: Very toxic to aquatic life

Aquatic Chronic 1; H410: Very toxic to aquatic life with long lasting effects

Supplemental information in accordance with Regulation (EC) No 1272/2008:

EUH401: To avoid risks to human health and the environment, comply with the instructions for use.

2.2 Label elements

Hazard pictograms:

GHS07,

GHS08,

GHS09



Signal word: **Warning**

Hazard statements:

H317: May cause an allergic skin reaction

H319: Causes serious eye irritation

H332: Harmful if inhaled

H335: May cause respiratory irritation

H351: Suspected of causing cancer

H410: Very toxic to aquatic life with long lasting effects

PRECAUTIONARY STATEMENTS:

P102: Keep out of reach of children.

P201: Obtain special instructions before use.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P302 + P352: IF ON SKIN: Wash with plenty of soap and water.

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P391: Collect spillage.

P501: Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non-hazardous waste.

Supplemental information:

EUH401: To avoid risks to human health and the environment, comply with the instructions for use.

Contains 1,2-benzisothiazolin-3-one. May cause an allergic reaction

2.3 Other hazards

This mixture does not meet the criteria for PBT or vPvB.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This mixture does not meet the criteria for PBT or vPvB.

Chemical Name	CAS / EC Number	Classification according to Regulation (EC) 1272/2008	Concentration
Chlorothalonil	1897-45-6 217-588-1	Skin Sens. 1; H317 Eye Dam. 1; H318 Acute Tox. 2; H330 STOT SE 3; H335 Carc. 2; H351 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	40.4% w/w
Propane-1,2-diol	57-55-6 200-338-0	-	5 – 10% w/w

Please refer to section 16 for full text of hazard phrases if not displayed in section 2 or 3.

4. FIRST AID MEASURES

4.1 Description of first aid measures:

Classification in accordance with Regulation (EC) No 1272/2008:

General notes: Have the product container, label or Safety Data Sheet at hand when seeking medical advice.

Inhalation: Move the victim to fresh air. If breathing is irregular or stopped, administer artificial respiration. Keep patient warm and at rest. Call a doctor or Poison Control Centre immediately.

Eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Immediate medical attention is required.

Skin contact: Take off all contaminated clothing immediately. Wash off immediately with plenty of water. If skin irritation persists, seek medical attention. Wash contaminated clothing before re-use.

Ingestion: If swallowed, seek medical advice immediately and show the container or label. Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

Product may cause irritation of the eyes, skin and respiratory tract.

4.3 Indication of any immediate medical attention and special treatment needed

There is no specific antidote available. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Extinguishing media - small fires Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Extinguishing media - large fires Use alcohol-resistant foam or water spray. Do not use a solid water stream as it may scatter and spread fire.

5.2 Specific hazards arising from the substance or mixture

As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion (see section 10). Exposure to decomposition products may be a hazard to health.

5.3 Advice for firefighters

Wear full protective clothing and self-contained breathing apparatus. Do not allow run-off from firefighting to enter drains or water courses. Cool closed containers exposed to fire with water spray.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Wear suitable personal protective equipment. Avoid contact with spillage. Ensure adequate ventilation.

6.2 Environmental precautions

Do not discharge into drains or the environment. If this product enters a water course or a sewer (including via contaminated soil & vegetation) contact local water authority and inform the Environment Agency (emergency number 0800 807060)

6.3 Methods and material for containment and cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). If the product contaminates rivers and lakes or drains inform respective authorities.

6.4 Reference to other sections

Refer to protective measures listed in sections 7 and 8. Refer to disposal considerations listed in section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. When using do not eat, drink or smoke. Ensure adequate ventilation. Use personal protective equipment as specified in section 8.

7.2 Conditions for safe storage, including any incompatibilities

No special storage conditions required. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Keep away from food, drink and animal feedstuffs.

7.3. Specific end use(s)

Refer to product label.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control Parameters

Chemical Name	Exposure Limit(s)	Type of Exposure Limit
Chloroethalonil	0.1 mg/m3	8 h TWA
Propane-1,2-diol	10 mg/m3 (Particulates) 150ppm, 470 mg/m3 (Total vapour & particulates)	8 h TWA 8 h TWA

8.2 Exposure Controls

Engineering Measures: Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated. The extent of these protection measures depends on the actual risks in use. If airborne mist or vapours are generated, use local exhaust ventilation controls. Assess exposure and use any additional measures to keep airborne levels below any relevant exposure limit. Where necessary, seek additional occupational hygiene advice.

Protective measures: The use of technical measures should always have priority over the use of personal protective equipment. When selecting personal protective equipment, seek appropriate professional advice. Personal protective equipment should be certified to appropriate standards.

Respiratory protection: A combination gas, vapour and particulate respirator may be necessary until effective technical measures are installed. Protection provided by air-purifying respirators is limited. Use a self-contained breathing apparatus in cases of emergency spills, when exposure levels are unknown, or under any circumstances where air-purifying respirators may not provide adequate protection.

Hand protection: Chemical resistant gloves should be used. Gloves should be certified to an appropriate standard. Gloves should have a minimum breakthrough time that is appropriate to the duration of exposure. The breakthrough time of gloves varies according to the thickness, material and manufacturer. Gloves should be changed when breakthrough is suspected. Suitable material: nitrile rubber.

Eye Protection: If eye contact is possible, use tight-fitting chemical safety goggles and a faceshield.

Skin and body protection: Assess the exposure and select chemical resistant clothing based on the potential for contact and the permeation / penetration characteristics of the clothing material. Wash with soap and water after removing protective clothing. Decontaminate clothing before re-use, or use disposable equipment (suits, aprons, sleeves, boots, etc.). Wear as appropriate: impervious protective suit.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical State: Liquid

Form: Suspension

Colour: Grey white to light beige

Odour: Pungent, weak

Odour Threshold: No data available

pH: 5 – 9 at 1 % w/v

Melting point/range: -5 °C

Boiling point/boiling range: >100 °C

Flash point: >99 °C at 99.6 kPa Pensky-Martens c.c.

Evaporation rate: No data available

Flammability (solid, gas): No data available

Lower explosion limit: No data available

Upper explosion limit: No data available

Vapour pressure: No data available

Relative vapour density: No data available

Density: 1.24 g/cm³

Solubility in other solvents: No data available

Partition Coefficient n-octanol/water: No data available

Autoignition temperature: No data available

Thermal decomposition: No data available

Viscosity, dynamic: No data available

Viscosity, kinematic: No data available

Explosive properties: Not explosive

Oxidizing properties: Not oxidizing

9.2 Other information

No other relevant information identified

10. STABILITY AND REACTIVITY

10.1 Reactivity

Information not available

10.2 Chemical stability

Information not available

10.3 Possibility of hazardous reactions

None known. Hazardous polymerisation does not occur.

10.4 Conditions to avoid

None specified

10.5 Incompatible materials

None specified.

10.6 Hazardous decomposition products

Combustion or thermal decomposition will evolve toxic and irritant vapours.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute oral toxicity: LD50 rat, 4,200 mg/kg

Acute inhalational toxicity: LC50 rat, > 1.96mg/l, 4 h

Acute dermal toxicity: LD50 rabbit, > 20,000 mg/kg

Skin corrosion/irritation: Rabbit: mildly irritating

Serious eye damage/eye irritation: Rabbit: moderately irritating

Respiratory or skin sensitisation: Buehler Test guinea pig: A skin sensitizer in animal tests.

Germ cell mutagenicity

Chlorothalonil: Did not show mutagenic effects in animal experiments.

Carcinogenicity

Chlorothalonil: Chlorothalonil causes kidney tumours in rats and mice via a non-genotoxic mode of action secondary to target organ toxicity.

Reproductive toxicity

Chlorothalonil: Did not show reproductive toxicity effects in animal experiments.

STOT – single exposure: May cause respiratory irritation.

STOT – repeated exposure

Chlorothalonil: No adverse effect has been observed in chronic toxicity tests.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish: LC50 *Oncorhynchus mykiss* (rainbow trout), 0.195 mg/l, 96 h

Toxicity to aquatic invertebrates: EC50 *Daphnia magna* (Water flea), 0.180 mg/l, 24 h

Toxicity to aquatic plants: ErC50 *Pseudokirchneriella subcapitata* (green algae), 0.53 mg/l, 96 h

12.2 Persistence and degradability

Stability in water

chlorothalonil: Degradation half-life: < 5 d at 20 °C. Not persistent in water

Stability in soil

chlorothalonil: Degradation half-life: ca. 7 d. Not persistent in soil

12.3 Bioaccumulative potential

Chlorothalonil has low potential for bioaccumulation.

12.4 Mobility in soil

Chlorothalonil has low to slight mobility in soil.

12.5 Results of PBT and vPvB assessment

Not classified.

12.6 Other adverse effects

None specified.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product: Do not contaminate ponds, waterways or ditches with chemical or used container.

Do not dispose of waste into sewer. Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated packaging: Empty remaining contents. Triple rinse containers. Empty containers should be taken for local recycling or waste disposal. Do not re-use empty containers

14. TRANSPORT INFORMATION

14.1 UN number

UN3082

14.2 UN proper shipping name

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S (CHLOROTHALONIL)

14.3 Transport hazard class(es)

9

14.4 Packing group

III

14.5 Environmental hazards

Environmentally hazardous, marine pollutant.

14.6 Special precautions for user

None specified.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code

Information not available.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This mixture is classified and labelled in accordance with Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures and Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Not required

16. OTHER INFORMATION

Full text of hazard statements not displayed in section 2 or 3:

H318: Causes serious eye damage

H330: Fatal if inhaled

The information provided in this safety data sheet is accurate at the date of publication and will be updated as and when appropriate. This Safety Data Sheet is prepared in compliance with Annex I of the REACH regulation 453/2010. 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. This version replaces all previous versions.

END OF SAFETY DATA SHEET