

**BRAVO 500**

Version 10 - This version replaces all previous versions.

Revision Date 23.09.2013

**SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING****1.1 Product identifier****Product name** : BRAVO 500**Design code** : A7867A**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Use : Fungicide

**1.3 Details of the supplier of the safety data sheet****Company** Syngenta UK Limited  
CPC4, Capital Park  
Fulbourn, Cambridge  
CB21 5XE**Telephone** : (01223) 883400**Telefax** : (01223) 882195**Website** : [www.syngenta.co.uk](http://www.syngenta.co.uk)**1.3 Emergency telephone number**

: +44 (0) 1484 538444

**SECTION 2. HAZARDS IDENTIFICATION****2.1 Classification of the substance or mixture**

Classification according to Regulation (EU) 1272/2008

|  |            |      |
|--|------------|------|
| Skin sensitisation                               | Category 1 | H317 |
| Eye irritation                                   | Category 2 | H319 |
| Acute toxicity (Inhalation)                      | Category 4 | H332 |
| Specific target organ toxicity - single exposure | Category 3 | H335 |
| Carcinogenicity                                  | Category 2 | H351 |
| Acute aquatic toxicity                           | Category 1 | H400 |
| Chronic aquatic toxicity                         | Category 1 | H410 |

For the full text of the H-Statements mentioned in this Section, see Section 16.


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### 2.2 Label elements

Labelling: Regulation (EC) No. 1272/2008

| Hazard pictograms   |  |  |
|---|--|--|
|  |  |  |
| Signal Word   | :Warning   |  |
| Hazard Statements   | :H351<br>:H317<br>:H319<br>:H332<br>:H335<br>:H410   | Suspected of causing cancer<br>May cause allergic skin reaction<br>Causes serious eye irritation<br>Harmful if inhaled<br>May cause respiratory irritation<br>Very toxic to aquatic life with long lasting effects.  |
| Precautions Statements  | :P102<br>:P201<br>:P280<br><br>:P302/P352<br>:P305/P351/P338<br><br>:P308/P313<br><br>:P391<br>:P501 | Keep out of reach of children<br>Obtain special instructions before use<br>Wear protective gloves/protective clothing/ eye protection/face protection<br>IF ON SKIN: Wash with plenty of soap and water<br>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing<br>IF exposed or concerned: Get medical advice/ attention.<br>Collect spillage<br>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.   |

Hazardous components which must be listed on the label:

- chlorothalonil

### 2.3 Other hazards

None known.

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### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.2 Mixtures

##### Hazardous components

| Chemical Name    | CAS No. EC No. Registration Number | Classification (REGULATION (EC) No. 1272/2008)  | Concentration |
|------------------|------------------------------------|---|---------------|
| Chlorothalonil   | 1897-45-6<br>217-588-1             | Skin Sens.1; H317<br>Eye Dam.1; H318<br>Acute Tox.2; H330<br>STOT SE3; H335<br>Carc.2; H351<br>Aquatic Acute1; H400<br>Aquatic Chronic1; H410 | 40 % w/w      |
| Propane-1,2-diol | 57-55-6<br>200-338-0               | -   | 5 – 10 % w/w  |

Substances for which there are Community workplace exposure limits.

For the full text of the H-Statements mentioned in this Section, see Section 16.

### SECTION 4. FIRST AID MEASURES

#### 4.1 Description of first aid measures

- General Advice : Have the product container, label or Material Safety Data Sheet with you when calling the Syngenta emergency number, a poison control centre or physician, or going for treatment.
- Inhalation : Move the victim to fresh air. If breathing is irregular or stopped, administer artificial respiration. Keep patient warm and at rest. Call a physician or Poison Control Centre immediately.
- Skin Contact : Take off all contaminated clothing immediately. Wash off immediately with plenty of water. If skin irritation persists, call a physician. Wash contaminated clothing before re-use.
- 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.
- Ingestion : If swallowed, seek medical advice immediately and show this container or label. Do NOT induce vomiting.

#### 4.2 Most important symptoms and effects, both acute and delayed

**Symptoms** : No information available.

#### 4.3 Indication of any immediate medical attention and special treatment needed

**Medical advice** : There is no specific antidote available.  
Treat symptomatically.

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**SECTION 5. FIREFIGHTING 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 Special 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 fire-fighters:**  
Wear full protective clothing and self-contained breathing apparatus. Do not allow run-off from fire fighting to enter drains or water courses. Cool closed containers exposed to fire with water spray.
- 

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

- 6.1 Personal precautions, protective equipment and emergency procedures**  
Refer to protective measures listed in sections 7 and 8.
- 6.2 Environmental precautions:**  
Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system.
- 6.3 Methods and materials 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.
- 

**SECTION 7. HANDLING AND STORAGE**

- 7.1 Precautions for safe handling**  
No special protective measures against fire required. Avoid contact with skin and eyes. When using do not eat, drink or smoke. For personal protection see 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 feedingstuffs.
- 7.3 Specific end use(s)**  
Registered Crop Protection products: For proper and safe use of this product,

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please refer to the approval conditions laid down on the product label.

### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### 8.1 Control parameters

| Components       | Exposure limit(s)  | Type of exposure limit | Source           |
|------------------|--|------------------------|------------------|
| chlorothalonil   | 0.1 mg/m <sup>3</sup>  | 8 h TWA                | SYNGENTA         |
| propane-1,2-diol | 10 mg/m <sup>3</sup> (Particulates)<br>150 ppm, 470 mg/m <sup>3</sup> (Total<br>(vapour & particulates)) | 8 h TWA<br>8 h TWA     | UK HSE<br>UK HSE |

The following recommendations for exposure controls/personal protection are intended for the manufacture, formulation and packaging of the product.

#### 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.

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### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

#### 9.1 Information on basic physical and chemical properties

|                                     |  |
|-------------------------------------|--|
| <b>Physical State</b>               | : Liquid                                 |
| <b>Form</b>                         | : Suspension                             |
| <b>Colour</b>                       | : Grey white to light beige              |
| <b>Odour</b>                        | : Pungent, weak                          |
| <b>Odour Threshold</b>              | : No data available                      |
| <b>pH</b>                           | : 5 – 9 at 1 % w/v                       |
| <b>Melting point/range</b>          | : -5 °C                                  |
| <b>Boiling point/boiling range</b>  | : >100 °C                                |
| <b>Flash point</b>                  | : >99 °C at 99.6 kPa Pensky-Martens c.c. |
| <b>Evaporation rate</b>             | : No data available                      |
| <b>Flammability (solid, gas)</b>    | : No data available                      |
| <b>Lower explosion limit</b>        | : No data available                      |
| <b>Upper explosion limit</b>        | : No data available                      |
| <b>Vapour pressure</b>              | : No data available                      |
| <b>Relative vapour density</b>      | : No data available                      |
| <b>Density</b>                      | : 1.24 g/cm <sup>3</sup>                 |
| <b>Solubility in other solvents</b> | : No data available                      |
| <b>Partition Coefficient</b>        | : No data available                      |
| <b>n-octanol/water</b>              |  |
| <b>Autoignition temperature</b>     | : No data available                      |
| <b>Thermal decomposition</b>        | : No data available                      |
| <b>Viscosity, dynamic</b>           | : No data available                      |
| <b>Viscosity, kinematic</b>         | : No data available                      |
| <b>Explosive properties</b>         | : Not explosive                          |
| <b>Oxidizing properties</b>         | : Not oxidising                          |

#### 9.2 Other information

: No data available  
:

### SECTION 10. STABILITY AND REACTIVITY

|      |                                    |   |
|------|------------------------------------|---|
| 10.1 | Reactivity                         | : No information available  |
| 10.2 | Chemical Stability                 | : No information available  |
| 10.3 | Possibility of hazardous reactions | : None known. Hazardous polymerisation does not occur.                        |
| 10.4 | Conditions to avoid                | : No information available  |
| 10.5 | Incompatible materials             | : No information available  |
| 10.6 | Hazardous decomposition products   | : Combustion or thermal decomposition will evolve toxic and irritant vapours. |

### SECTION 11. TOXICOLOGICAL INFORMATION

#### 11.1 Information on toxicological effects

|                                    |                                 |
|------------------------------------|---------------------------------|
| <b>Acute oral toxicity</b>         | : LD50 rat, 4,200 mg/kg         |
| <b>Acute inhalational toxicity</b> | : LC50 rat, > 1.96mg/l, 4 h     |
| <b>Acute dermal toxicity</b>       | : LD50 rabbit, > 20,000 mg/kg   |
| <b>Skin corrosion/irritation</b>   | : Rabbit: mildly irritating     |
| <b>Serious eye damage/eye</b>      | : Rabbit: moderately irritating |

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### irritation

|  |   |  |
|--|---|--|
| <b>Respiratory or skin sensitisation</b> | : | Buehler Test guinea pig: A skin sensitizer in animal tests.  |
| <b>Germ cell mutagenicity</b>            | : |  |
| <b>Chlorothalonil</b>                    | : | Did not show mutagenic effects in animal experiments.  |
| <b>Carcinogenicity</b>                   | : |  |
| <b>chlorothalonil</b>                    | : | Chlorothalonil causes kidney tumours in rats and mice via a non-genotoxic mode of action secondary to target organ toxicity. |
| <b>Reproductive toxicity</b>             | : |  |
| <b>chlorothalonil</b>                    | : | Did not show reproductive toxicity effects in animal experiments.  |
| <b>STOT – single exposure</b>            | : | May cause respiratory irritation.  |
| <b>STOT – repeated exposure</b>          | : |  |
| <b>chlorothalonil</b>                    | : | No adverse effect has been observed in chronic toxicity tests.   |

## SECTION 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

|  |   |   |
|--|---|---|
| <b>Toxicity to fish</b>                  | : | LC50 <i>Oncorhynchus mykiss</i> (rainbow trout), 0.195 mg/l, 96 h           |
| <b>Toxicity to aquatic invertebrates</b> | : | EC50 <i>Daphnia magna</i> (Water flea), 0.180 mg/l, 24 h                    |
| <b>Toxicity to aquatic plants</b>        | : | ErC50 <i>Pseudokirchneriella subcapitata</i> (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 | : | Chlorothalonil has low potential for bioaccumulation. |
|                | : |   |

### 12.4 Mobility in soil

|                |   |  |
|----------------|---|--|
| chlorothalonil | : | Chlorothalonil has low to slight mobility in soil. |
|----------------|---|--|

### 12.5 Results of PBT and vPvB assessment

|                |   |  |
|----------------|---|--|
| chlorothalonil | : | This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).<br>This substance is not considered to be very persistent nor very bioaccumulating (vPvB). |
|----------------|---|--|

### 12.6 Other adverse effects

None known.

## SECTION 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 |
|---------|---|--|

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Contaminated packaging : incineration. If recycling is not practicable, dispose of in compliance with local regulations.  
: Empty remaining contents. Triple rinse containers. Empty containers should be taken for local recycling or waste disposal. Do not re-use empty containers.

### SECTION 14. TRANSPORT INFORMATION

#### Land transport (ADR/RID)

|        |                            |   |  |
|--------|----------------------------|---|--|
| 14.1   | UN Number                  | : | UN 3082  |
| 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  |
| Labels |                            | : | 9  |
| 14.5   | Environmental hazards      | : | Environmentally hazardous  |

#### Sea transport(IMDG)

|        |                            |   |  |
|--------|----------------------------|---|--|
| 14.1   | UN Number                  | : | UN 3082  |
| 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  |
| Labels |                            | : | 9  |
| 14.5   | Environmental hazards      | : | Marine pollutant   |

#### Air transport (IATA-DGR)

|        |                              |   |  |
|--------|------------------------------|---|--|
| 14.1   | UN Number                    | : | UN 3082  |
| 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  |
| Labels |                              | : | 9  |
| 14.6   | Special precautions for user | : | None   |

#### 14.6 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

not applicable



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### SECTION 15. REGULATORY INFORMATION

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

GHS-Labeling

| Hazard pictograms   |  |   |
|---|--|---|
|  |  |   |
| Signal Word   | :Warning   |   |
| Hazard Statements   | :H351<br>:H317<br>:H319<br>:H332<br>:H335<br>:H410   | Suspected of causing cancer<br>May cause allergic skin reaction<br>Causes serious eye irritation<br>Harmful if inhaled<br>May cause respiratory irritation<br>Very toxic to aquatic life with long lasting effects.   |
| Precautions Statements  | :P102<br>:P201<br>:P280<br><br>:P302/P352<br>:P305/P351/P338<br><br>:P308/P313<br><br>:P391<br>:P501 | Keep out of reach of children<br>Obtain special instructions before use<br>Wear protective gloves/protective clothing/ eye protection/face protection<br>IF ON SKIN: Wash with plenty of soap and water<br>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing<br>IF exposed or concerned: Get medical advice/ attention.<br>Collect spillage+<br>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.  |

Hazardous components which must be listed on the label:

- chlorothalonil

#### 15.2 Chemical Safety Assessment

A Chemical Safety Assessment is not required for this substance.

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**SECTION 16. OTHER INFORMATION****Further information**

Approval number, MAPP 14548; PCS No. 03452.

Use plant protection products safely. Always read the label and product information before use.

Based upon SDS release dated 23/09/2013, version 10 with local amendment.

Full text of H-Statements referred to under sections 2 and 3.

|      |  |
|------|--|
| H317 | May cause an allergic skin reaction.                 |
| H318 | Causes serious eye damage                            |
| H319 | Causes serious eye irritation                        |
| H330 | Fatal if inhaled.                                    |
| H332 | Harmful if inhaled                                   |
| H335 | May cause respiratory irritation                     |
| H351 | Suspected of causing cancer                          |
| H400 | Very toxic to aquatic life.                          |
| H410 | Very toxic to aquatic life with long lasting effects |

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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