


|   |                          |                        |
|---|--------------------------|------------------------|
|  | <b>SAFETY DATA SHEET</b> | Version 07             |
|   | <b>MSB C</b>             | April 2017             |
|   | <b>M-DIR-PF-02</b>       | Pág. 1 de 6            |
| Elaborated by: Sánchez, G.  | Reviewed by: Sánchez, G. | Approved by: Nater, G. |
| Summary of changes: Update to the physical properties                             |                          |                        |

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

- 1.1 Product information**  
**Comercial Name:** MSB–MENADIONE SODIUM BISULFITE COMPLEX– FEED GRADE
- 1.2 Recommended uses of the substance or mixture:** Additive for animal nutrition to be used in feed
- 1.3 Details of the supplier:** **DIROX S.A.**  
**Industrial Plant:** Ruta Nacional Nº 1 Km. 48  
C.P. 80.100 Libertad - San José -Uruguay  
**Commercial Office:** Tomás Diago 748  
C.P. 11.300 – Montevideo -Uruguay  
Tel: +598 2710 6351 – 2710 4348  
Fax: +598 2711 7516  
e-mail: [dirox@dirox.com.uy](mailto:dirox@dirox.com.uy)  
+598 4345 4186 Int. 110
- 1.4 Emergency telephone:** +598 4345 4186 Int. 110

## 2. HAZARDS IDENTIFICATION

### 2.1 GHS Classification according to Dec. 307/2009 (Uruguay)

**Signal word:** DANGER/WARNING

**Pictogram(s):**



**Category**

**Hazard statements**

Acute toxicity (oral), Category 4

H302: Harmful if swallowed.

Serious eye damage, Category 1

H318: Causes serious eye damage.

Skin irritation: Category 2

H315: Causes skin irritation.

Eye irritation: Category 2

H319: Causes serious eye irritation.

Specific target organ toxicity  
(single exposure): Category 3

H335: May cause respiratory irritation.

Acute aquatic toxicity: Category 1

H400: Very toxic to aquatic life.

Chronic aquatic toxicity: Category 1

H410: Very toxic to aquatic life with long lasting effects.

#### Precautionary statements:

##### Prevention:

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P273 Avoid release to the environment.

P280 Wear protective gloves/eye protection/face protection.

##### Response:

P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.

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

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.


P332 + P313 If skin irritation occurs: Get medical advice/attention.

P362 Take off contaminated clothing and wash before reuse.

P391: Collect spillage.

##### Storage and disposal

P501: Dispose of contents/container in accordance with local/regional/national/international regulation

|   |                          |                        |
|---|--------------------------|------------------------|
|  | <b>SAFETY DATA SHEET</b> | Version 07             |
|   | <b>MSB C</b>             | April 2017             |
|   | <b>M-DIR-PF-02</b>       | Pág. 2 de 6            |
| Elaborated by: Sánchez, G.  | Reviewed by: Sánchez, G. | Approved by: Nater, G. |
| Summary of changes: Update to the physical properties                             |                          |                        |

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

#### 3.1 Substance:

**Chemical Name:** 2 Methyl 1,4 naphtoquinone, 2 Sodium bisulfite /1,2,3,4 tetrahydro-2 Methyl-1,4 Dioxo 2 NaphtaleneSulphonic acid Sodium Salt compound with Sodium Metabisulfite

**Chemical Formula:** C11H9NaO5S (dihidrated o trihidrated)

#### 3.2 Hazardous components:

| Substance                  | CAS-No / EINECS-No     | Concentration | Classification GHS   |
|----------------------------|------------------------|---------------|--|
| Menadione sodium bisulfite | 6147-37-1<br>204-987-0 | 63 % min.     | H315 Skin corrosion/irritation, Category 2<br>H319 Serious eye damage/eye irritation, Category 2<br>H335 STOT SE, Category 3 (Respiratory tract irritation)<br>H400 Aquatic environment - Acute, Category 1<br>H410 Aquatic environment - Chronic , Category 1 |
| Sodium metabisulfite       | 7681-57-4<br>231-673-0 | 35 % min.     | H302 Acute toxicity (oral), Category 4<br>H318 Serious eye damage, Category 1  |


The product is a mixture of menadione sodium bisulfite (MSB), diluted and stabilized with sodium metabisulfite (See also chemical name).

### 4. FIRST AID MEASURES

- Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Flush nose and mouth with cold water. If irritation persists, get medical attention.
- Skin contact:** Take off contaminated clothing and shoes immediately. Wash off with plenty of water. If symptoms persist, get medical attention. Wash contaminated clothing before reusing.
- Eye contact:** Rinse with plenty of water to the affected area, keeping eyelids open. Check for and remove any contact lenses. If irritation persists, get medical attention
- Ingestion:** Rinse mouth with water and drink plenty of water afterwards. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Obtain medical attention

### 5. FIREFIGHTING MEASURES

- 5.1 Extinguishing media:**  
In case of fire, use water spray (fog), foam, dry chemical or CO2.
- 5.2 Special hazards arising from the substance or mixture:**  
Do not allow run-off from fire fighting to enter drains or water courses.
- 5.3 Advice for firefighters:**  
Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

|   |  |             |
|---|--|-------------|
|  | <b>SAFETY DATA SHEET</b><br><br><b>MSB C</b> | Version 07  |
|   | <b>M-DIR-PF-02</b>                           | April 2017  |
| Elaborated by: Sánchez, G.  | Reviewed by: Sánchez, G.                     | Pág. 3 de 6 |
| Approved by: Nater, G.  |  |             |
| Summary of changes: Update to the physical properties                             |  |             |

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions:

Use personal protective equipment  
Avoid dust formation and breathing, provide ventilation.

### 6.2 Environmental precautions:

Do not let product enter drains and surface water

### 6.2 Methods for cleaning up:

Collect spilled material by aspiration (if it is possible) for reuse or disposal. Keep in well closed containers. Finish cleaning by spreading water on the contaminated surface. Collect spilled material in well closed containers.  
Dispose the collect according to local and regional authority requirements (see sect. 13).

## 7. HANDLING AND STORAGE

### 7.1 Handling:

Avoid dust formation. When handling apply local exhaust ventilation, in case of insufficient ventilation, use personal protective equipment (see sect. 8).  
Avoid skin contact and eye contact. Wear suitable protective clothing.  
Smoking, eating and drinking should be prohibited in the application area.  
Wash thoroughly after handling.

### 7.2 Storage:

Keep container tightly closed and away from heat.  
Store in a cool, dry and well ventilated place. Avoid heat, humidity and light exposure.  
Store separate from basic substances (see sect. 10).  
Standard packaging: carton boxes with inner polyethylene bag, plastic big bags with Polyethylene inside.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### 8.1 Control parameters:

TLV-TWA (ACGIH): - Sodium metabisulfite 5 mg/m<sup>3</sup>  
- Menadione Sodium Bisulfite 10 mg/m<sup>3</sup>

### 8.2 Exposure controls

#### 8.2.1 Appropriate engineering controls:

Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

#### 8.2.2 Individual protection measures

##### Respiratory protection:

Dust respirator. Be sure to use an approved/certified respirator or equivalent. Follow the OSHA respirator regulations or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

##### Hand protection:


Gloves: PVC or Neoprene

##### Eye/face protection:

Use chemical safety glasses. Maintain eye wash fountain and quick-drench facilities in work area.

##### Skin protection:

Wear impervious protective clothing, including gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

|   |                          |                        |
|---|--------------------------|------------------------|
|  | <b>SAFETY DATA SHEET</b> | Version 07             |
|   | <b>MSB C</b>             | April 2017             |
|   | <b>M-DIR-PF-02</b>       | Pág. 4 de 6            |
| Elaborated by: Sánchez, G.  | Reviewed by: Sánchez, G. | Approved by: Nater, G. |
| Summary of changes: Update to the physical properties                             |                          |                        |

## 9. PHYSICAL AND CHEMICAL PROPERTIES


|                                |                         |
|--------------------------------|-------------------------|
| <b>Appearance:</b>             | powder                  |
| <b>Colour:</b>                 | White to whitish        |
| <b>Odour:</b>                  | Characteristic          |
| <b>Molecular Weight:</b>       | 276,24 (g/mol)          |
| <b>pH (sol. 19 g/L water):</b> | 4,0 – 4,5               |
| <b>Melting point range:</b>    | 150 °C (descompositión) |
| <b>Water solubility:</b>       | 360 g /L                |

## 10. STABILITY AND REACTIVITY

- 10.1 Reactivity**  
Stable at room temperature in closed containers under normal storage and handling conditions.
- 10.2 Chemical stability**  
The product is stable, If handled and stored as recommended. It descomposes at 193-198 °C
- 10.3 Conditions to avoid**  
Heat, light and humidity  
Dust may form explosive mixture in air.
- 10.4 Incompatible materials**  
Avoid Strong acids and strong bases.Strong oxidizing agents

## 11. TOXICOLOGICAL INFORMATION

- 11.1 Acute toxicity:** LD50 (rat) > 5000 mg/kg
- 11.2 Irritation and corrosion:** Irritating to skin / eyes
- 11.3 Sensitisation** no data available
- 11.4 Carcinogenicity:** classified by IARC in Group 3 "Compounds whose carcinogenic effect on the human being cannot be classified".
- 11.5 Teratogenicity** not teratogenic
- 11.6 STOT-single exposure:** May cause respiratory irritation. Exposure to this product may cause interaction to any personbeing treated with a coagulation inhibitor.
- 11.7 STOT-repeated exposure:** no data available
- 11.8 Aspiration hazard:** no data available

|   |                          |                        |
|---|--------------------------|------------------------|
|  | <b>SAFETY DATA SHEET</b> | Version 07             |
|   | <b>MSB C</b>             | April 2017             |
|   | <b>M-DIR-PF-02</b>       | Pág. 5 de 6            |
| Elaborated by: Sánchez, G.  | Reviewed by: Sánchez, G. | Approved by: Nater, G. |
| Summary of changes: Update to the physical properties                             |                          |                        |

## 12. ECOLOGICAL INFORMATION

### 12.1 Aquatic toxicity

|   |  |
|---|--|
| <b>Toxicity to fish:</b>                                    | Oncorhynchus mykiss (rainbow trout)<br>LC50 (96 h) 0,43 mg/l (nominal concentration)<br>LC0 0,32 mg/l (nominal concentration)<br>OECD Test Guideline 203 |
| <b>Toxicity to daphnia and other aquatic invertebrates:</b> | Daphnia magna (Water flea)<br>EC50 (48 h) 0,77 mg/l (nominal concentration)<br>OECD Test Guideline 202   |
| <b>Toxicity to algae:</b>                                   | Scenedesmus capricornutum (fresh water algae)<br>ErC50 (72 h) 6,6 mg/l (nominal concentration)<br>OECD Test Guideline 201                                |
| <b>Toxicity to bacteria:</b>                                | Activated sludge<br>(28 d) 74 mg/l<br>No inhibition was observed under the biodegradation test.<br>OECD Test Guideline 301A                              |

### 12.2 Persistence and degradability

|                          |   |
|--------------------------|---|
| <b>Biodegradability:</b> | Not readily biodegradable.<br>40 % (28 d)<br>38 % (7 d)<br>OECD Test Guideline 301A |
|--------------------------|---|

### 12.3 Other adverse effects


|   |  |
|---|--|
| <b>Additional ecological information:</b> | An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. |
|---|--|

## 13. DISPOSAL CONSIDERATIONS

|                                |   |
|--------------------------------|---|
| <b>Product:</b>                | Do not dispose of waste into sewer.<br>Do not contaminate ponds, waterways or ditches with chemical or used container. Discharge into the environment must be avoided.<br>Offer surplus and non-recyclable solutions to a licensed disposal company according to regional or national regulations |
| <b>Contaminated packaging:</b> | Dispose of as unused product.<br>Do not re-use empty containers.  |
| <b>Untampered containers:</b>  | Untampered packaging may be taken for recycling   |

## 14. TRANSPORT INFORMATION

|  |   |
|--|---|
| <b>14.1 UN Number:</b>                     | <b>3077</b>   |
| <b>14.2 IMDG Description of the goods:</b> | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (menadione sodium bisulfite complex MSB C) |

|   |                          |                        |
|---|--------------------------|------------------------|
|  | <b>SAFETY DATA SHEET</b> | Version 07             |
|   | <b>MSB C</b>             | April 2017             |
|   | <b>M-DIR-PF-02</b>       | Pág. 6 de 6            |
| Elaborated by: Sánchez, G.  | Reviewed by: Sánchez, G. | Approved by: Nater, G. |
| Summary of changes: Update to the physical properties                             |                          |                        |

**Class :** 9  
**Packing group :** III  
**Marine pollutant :** Si

#### IATA

**Description of the goods:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
(menadione sodium bisulfite complex MSB C)

**Class:** 9  
**Packing group:** III  
**Packing instruction (cargo):** 956  
**Packing instruction (passenger):** 956

#### ADR / RID

**Description of the goods:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
(menadione sodium bisulfite complex MSB C)

**Class:** 9  
**Packing group:** III  
**Hazard identification No:** 90

## 15. REGULATORY INFORMATION

This SDS has been prepared according to **Dec. 307/2009 - Uruguay (GHS)** and the EC regulation:

**CLP - Regulation (EC) No 1272/2008 (GHS):** See section 2 and 3

#### DSD - Classification and labelling according to Directive 67/548/EC:

S-phrase(s):

S22 Do not breathe dust.

S61 Avoid release to the environment. Refer to special instructions/ Safety data sheets.

## 16. OTHER INFORMATION

### 16.1 Key or legend to abbreviations and acronyms

**GHS:** Globally Harmonized System of classification and labelling of chemicals (United Nations)

**CLP:** Regulation on Classification, Labelling and Packaging of Substances and Mixtures

### 16.2 Contact a poison control centre. List of Telephone Number:

AUSTRIA (Vienna Wien) +43 1 40 400 2222; BELGIUM (Brussels) +32 70 245 245; BULGARIA (Sofia) + 359 2 9154 409; CZECH REPUBLIC (Prague) +42 2 2491 9293; DENMARK (Copenhagen) +45 35 31 54 04; FINLAND (Helsinki ) +358 9 471 977; FRANCE (Paris) +33 1 40 05 48 48; GERMANY (Berlin) +49 30 450 653565; GREECE (Athens) +30 10 779 3777; HUNGARY (Budapest) +36 80 20 11 99; ICELAND (Reykjavik) +354 543 2222; IRELAND (Dublin) +353 1 8379964; ITALY (Rome) +39 06 305 4343; LITHUANIA (Vilnius) +370 2 36 20 52, +370 2 36 2092; NETHERLANDS (Bilthoven) +31 30 274 88 88; NORWAY (Oslo) +47 22 591300; POLAND (Gdansk) +48 58301 65 16 or +48 58 349 2831; PORTUGAL (Lisbon Lisboa ) 808 250 143 (for use only in Portugal), +351 21 330 3284; ROMANIA (Bucharest) +40 21 230 8000; SLOVENIA (Ljubljana) + 386 41 650 500; SPAIN (Barcelona) +34 93 227 98 33 or +34 93 227 54 00 bleep 190; SWEDEN (Stockholm) +46 8 33 12 31 (International) 112 (National); UNITED KINGDOM (London) 0870 243 2241.

**16.3** 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.