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

Product Identifier
Material Name: Penicillin G Procaine and Novobiocin Sodium Suspension
Trade Name: ALBADRY PLUS®, NOVODRY PLUS®
Synonyms: Albadry Plus Suspension; Novodry Plus Suspension
Chemical Family: Mixture

Relevant Identified Uses of the Substance or Mixture and Uses Advised Against
Intended Use: Veterinary product used for subclinical mastitis in dry cows only
Restrictions on Use: Not for human use

Details of the Supplier of the Safety Data Sheet

Zoetis Inc.
100 Campus Drive, P.O. Box 651
Florham Park, New Jersey 07932 (USA)
Rocky Mountain Poison Control Center Phone: 1-866-531-8896
Product Support/Technical Services Phone: 1-800-366-5288

Zoetis Belgium S.A.
Mercuriusstraat 20
1930 Zaventem
Belgium

Emergency telephone number:
CHEMTREC (24 hours): 1-800-424-9300
Contact E-Mail: VMIPSrecords@zoetis.com

2. HAZARDS IDENTIFICATION

Appearance: Clear, pale yellow, oily liquid

Classification of the Substance or Mixture
Skin Corrosion/Irritation: Category 2
Respiratory Sensitization: Category 1
Skin Sensitization: Category 1

EU Classification:
EU Indication of danger: Harmful Irritant
EU Symbol: Xn
EU Risk Phrases:
R38 - Irritating to skin.
R42/43 - May cause sensitization by inhalation and skin contact.

Label Elements
Signal Word: Danger
Hazard Statements:
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
Precautionary Statements:

P285 - In case of inadequate ventilation wear respiratory protection
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P264 - Wash hands thoroughly after handling
P272 - Contaminated work clothing should not be allowed out of the workplace
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTRE or doctor/physician
P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
P362 - Take off contaminated clothing and wash before reuse
P501 - Dispose of contents/container in accordance with all local and national regulations

Other Hazards

Short Term: May cause eye irritation
Long Term: May cause effects on blood and blood forming organs, liver.

Known Clinical Effects:
Clinical use of this drug has caused skin rash, loss of hair, blood system changes, Stevens-Johnson Syndrome (epidermal necrosis and exfoliative dermatitis), changes in liver function. Clinical use has caused effects on the gastrointestinal system, including. nausea, vomiting, diarrhea. Individuals who are sensitive to beta lactam antibiotics, both penicillins and cephalosporins, may experience contact or systemic hypersensitivity and anaphylaxis upon exposure to this drug.

Australian Hazard Classification (NOHSC):

Note:
This document has been prepared in accordance with standards for workplace safety, which requires the inclusion of all known hazards of the product or its ingredients regardless of the potential risk. The precautionary statements and warning included may not apply in all cases. Your needs may vary depending upon the potential for exposure in your workplace.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS Number</th>
<th>EU EINECS/ELINCS List</th>
<th>EU Classification</th>
<th>GHS Classification</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peanut Oil</td>
<td>8002-03-7</td>
<td>232-296-4</td>
<td>Xi; R38</td>
<td>Skin Irrit. 2 (H315)</td>
<td>93</td>
</tr>
<tr>
<td>Novobiocin Sodium</td>
<td>1476-53-5</td>
<td>216-023-6</td>
<td>Xi;R36 Xi:43</td>
<td>Eye Irrit. 2A (H319) Skin Sens. 1(H317)</td>
<td>5</td>
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<tr>
<td>Procaine Penicillin G monohydrate</td>
<td>6130-64-9</td>
<td>Not Listed</td>
<td>Xn;R42/43</td>
<td>Resp. Sens. 1 (H334) Skin Sens. 1 (H317)</td>
<td>2</td>
</tr>
</tbody>
</table>
Additional Information: Ingredient(s) indicated as hazardous have been assessed under standards for workplace safety.

For the full text of the R phrases and CLP/GHS abbreviations mentioned in this Section, see Section 16

### 4. FIRST AID MEASURES

**Description of First Aid Measures**

**Eye Contact:** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If irritation occurs or persists, get medical attention.

**Skin Contact:** Remove contaminated clothing and wash exposed area with soap and water. Obtain medical assistance if irritation occurs.

**Ingestion:** Never give anything by mouth to an unconscious person. Wash out mouth with water. Do not induce vomiting unless directed by medical personnel. Seek medical attention immediately.

**Inhalation:** Remove to fresh air and keep patient at rest. Seek medical attention immediately.

**Most Important Symptoms and Effects, Both Acute and Delayed**

**Symptoms and Effects of Exposure:** For information on potential signs and symptoms of exposure, see Section 2 - Hazards Identification and/or Section 11 - Toxicological Information.

**Medical Conditions Aggravated by Exposure:** People allergic to penicillins may exhibit cross reaction sensitivity.

**Indication of the Immediate Medical Attention and Special Treatment Needed**

**Notes to Physician:** None

### 5. FIRE-FIGHTING MEASURES

**Extinguishing Media:** Extinguish fires with CO2, extinguishing powder, foam, or water.

**Special Hazards Arising from the Substance or Mixture**

**Hazardous Combustion Products:** Emits toxic fumes of carbon monoxide, carbon dioxide, and nitrogen oxides.

**Fire / Explosion Hazards:** Fine particles (such as dust and mists) may fuel fires/explosions.

**Advice for Fire-Fighters**

During all fire fighting activities, wear appropriate protective equipment, including self-contained breathing apparatus.

### 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions, Protective Equipment and Emergency Procedures**

Personnel involved in clean-up should wear appropriate personal protective equipment (see Section 8). Minimize exposure.

**Environmental Precautions**

Place waste in an appropriately labeled, sealed container for disposal. Care should be taken to avoid environmental release.

**Methods and Material for Containment and Cleaning Up**

**Measures for Cleaning / Collecting:** Contain the source of spill if it is safe to do so. Collect spill with absorbent material. Clean spill area thoroughly.

**Additional Consideration for Large Spills:** Non-essential personnel should be evacuated from affected area. Report emergency situations immediately. Clean up operations should only be undertaken by trained personnel.
7. HANDLING AND STORAGE

Precautions for Safe Handling
Use with adequate ventilation. Avoid breathing vapor or mist. Avoid contact with eyes, skin and clothing. Avoid accidental injection. Wash thoroughly after handling. When handling, use proper personal protective equipment as specified in Section 8. Prevent environmental releases. Review and implement appropriate technical and procedural waste water and waste disposal measures to prevent occupational exposure or environmental releases. Potential points of process emissions of this material to the atmosphere should be controlled with dust collectors, HEPA filtration systems or other equivalent controls.

Conditions for Safe Storage, Including any Incompatibilities
Storage Conditions: Store in a cool, dry place away from light. Keep out of reach of children.
Specific end use(s): Veterinary product for the treatment of subclinical mastitis in dry cows only

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters
Refer to available public information for specific member state Occupational Exposure Limits.

Novobiocin Sodium
Zoetis OEL TWA 8-hr 250 µg/m³, Sensitizer

Procaine Penicillin G monohydrate
Zoetis OEB OEB 2 - Sensitizer (control exposure to the range of 100ug/m³ to < 1000ug/m³, provide additional precautions to protect from skin contact)

Exposure Controls
Engineering Controls: Engineering controls should be used as the primary means to control exposures. Use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits or within the OEB range.
Personal Protective Equipment: Refer to applicable national standards and regulations in the selection and use of personal protective equipment (PPE).

Hands: Wear impervious gloves if skin contact is possible.
Eyes: Safety glasses or goggles
Skin: Use protective clothing (uniforms, lab coats, disposable coveralls, etc.) in both production and laboratory areas.
Respiratory protection: If the applicable Occupational Exposure Limit (OEL) is exceeded, wear an appropriate respirator with a protection factor sufficient to control exposures to below the OEL. If airborne exposures are within or exceed the Occupational Exposure Band (OEB) range, wear an appropriate respirator with a protection factor sufficient to control exposures to the bottom of the OEB range.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Oil Suspension
Color: Light yellow
Odor: No data available.
Odor Threshold: No data available.
Molecular Formula: Mixture
Molecular Weight: Mixture
Solvent Solubility: No data available
Water Solubility: No data available
pH: No data available.
Melting/Freezing Point (°C): No data available
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
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<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling Point (°C):</td>
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</tr>
<tr>
<td>Partition Coefficient: (Method, pH, Endpoint, Value)</td>
<td>No data available. No data available</td>
</tr>
<tr>
<td>Novobiocin Sodium</td>
<td></td>
</tr>
<tr>
<td>Predicted</td>
<td>N/A</td>
</tr>
<tr>
<td>Log P</td>
<td>0.78</td>
</tr>
<tr>
<td>Decomposition Temperature (°C):</td>
<td>No data available.</td>
</tr>
<tr>
<td>Evaporation Rate (Gram/s):</td>
<td>No data available.</td>
</tr>
<tr>
<td>Vapor Pressure (kPa):</td>
<td>No data available.</td>
</tr>
<tr>
<td>Vapor Density (g/ml):</td>
<td>No data available.</td>
</tr>
<tr>
<td>Relative Density:</td>
<td>No data available.</td>
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<tr>
<td>Viscosity:</td>
<td>No data available.</td>
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<tr>
<td>Flammability:</td>
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<tr>
<td>Autoignition Temperature (Solid) (°C):</td>
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<tr>
<td>Flammability (Solids):</td>
<td>No data available.</td>
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<tr>
<td>Flash Point (Liquid) (°C):</td>
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<tr>
<td>Upper Explosive Limits (Liquid) (% by Vol.):</td>
<td>No data available.</td>
</tr>
<tr>
<td>Lower Explosive Limits (Liquid) (% by Vol.):</td>
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10. STABILITY AND Reactivity

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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</thead>
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<tr>
<td>Reactivity:</td>
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</tr>
<tr>
<td>Chemical Stability:</td>
<td>Stable under normal conditions of use.</td>
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<tr>
<td>Possibility of Hazardous Reactions</td>
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</tr>
<tr>
<td>Oxidizing Properties:</td>
<td>No data available.</td>
</tr>
<tr>
<td>Conditions to Avoid:</td>
<td>Fine particles (such as dust and mists) may fuel fires/explosions.</td>
</tr>
<tr>
<td>Incompatible Materials:</td>
<td>As a precautionary measure, keep away from strong oxidizers</td>
</tr>
<tr>
<td>Hazardous Decomposition Products:</td>
<td>No data available.</td>
</tr>
</tbody>
</table>

11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

General Information: Toxicological properties of the formulation have not been fully investigated. The information included in this section describes the potential hazards of the individual ingredients.

Acute Toxicity: (Species, Route, End Point, Dose)

**Procaine Penicillin G monohydrate**
- **Mouse** Oral LD50 > 2000 mg/kg
- **Rat** Para-periosteal LD50 97 mg/kg

**Novobiocin Sodium**
- **Rat** Oral LD 50 3200 mg/kg
- **Rat** Para-periosteal LD 50 360mg/kg
- **Rat** Intraperitoneal LD 50 370mg/kg
- **Mouse** Oral LD 50 962mg/kg
- **Mouse** Intraperitoneal LD 50 225mg/kg

Acute Toxicity Comments: A greater than symbol (>) indicates that the toxicity endpoint being tested was not achievable at the highest dose used in the test.
SAFETY DATA SHEET

11. TOXICOLOGICAL INFORMATION

**Irritation / Sensitization: (Study Type, Species, Severity)**

**Novobiocin Sodium**
Eye Irritation  Rabbit  Moderate

**Peanut Oil**
Skin Irritation  Rabbit  Moderate

**Reproduction & Developmental Toxicity: (Study Type, Species, Route, Dose, End Point, Effect(s))**

**Novobiocin Sodium**
Embryo / Fetal Development  Rat  Oral  40 mg/kg/day  NOAEL  Not teratogenic
Reproductive & Fertility  Rat  Oral  40 mg/kg/day  NOAEL  No effects at maximum dose

**Genetic Toxicity: (Study Type, Cell Type/Organism, Result)**

**Peanut Oil**
Bacterial Mutagenicity (Ames)  *Salmonella*  Negative

**Carcinogen Status:** None of the components of this formulation are listed as a carcinogen by IARC, NTP or OSHA.

12. ECOLOGICAL INFORMATION

**Environmental Overview:** Environmental properties have not been investigated. Releases to the environment should be avoided.

**Toxicity:** No data available

**Persistence and Degradability:** No data available

**Bio-accumulative Potential:** No data available

**Novobiocin Sodium**
Predicted  N/A  Log P  0.78

**Mobility in Soil:** No data available

13. DISPOSAL CONSIDERATIONS

**Waste Treatment Methods:** Dispose of waste in accordance with all applicable laws and regulations. Member State specific and Community specific provisions must be considered. Considering the relevant known environmental and human health hazards of the material, review and implement appropriate technical and procedural waste water and waste disposal measures to prevent occupational exposure and environmental release. It is recommended that waste minimization be practiced. The best available technology should be utilized to prevent environmental releases. This may include destructive techniques for waste and wastewater.
14. TRANSPORT INFORMATION

The following refers to all modes of transportation unless specified below.

Not regulated for transport under USDOT, EUADR, IATA, or IMDG regulations.

15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

Canada - WHMIS: Classifications

WHMIS hazard class:
- Class D, Division 2, Subdivision A
- Class D, Division 2, and Subdivision B.

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

Peanut Oil

- CERCLA/SARA 313 Emission reporting: Not Listed
- California Proposition 65: Not Listed
- Inventory - United States TSCA - Sect. 8(b): Present
- Australia (AICS): Present
- EU EINECS/ELINCS List: 232-296-4

Novobiocin Sodium

- CERCLA/SARA 313 Emission reporting: Not Listed
- California Proposition 65: Not Listed
- Australia (AICS): Present
- EU EINECS/ELINCS List: 216-023-6

Procaine Penicillin G monohydrate

- CERCLA/SARA 313 Emission reporting: Not Listed
- California Proposition 65: Not Listed
- Australia (AICS): Present
- EU EINECS/ELINCS List: Not Listed

16. OTHER INFORMATION

Text of R phrases and GHS Classification abbreviations mentioned in Section 3

REVISION DATE: 17-Jun-2014

Australia (AICS):
- Present
- EU EINECS/ELINCS List: Not Listed

Penicillin G Procaine and Novobiocin Sodium Suspension

California Proposition 65
- Not Listed

EU EINECS/ELINCS List
- 232-296-4
- 216-023-6
- Not Listed

Material Name: Penicillin G Procaine and Novobiocin Sodium Suspension

Revision date: 17-Jun-2014

Version: 2.2
SAFETY DATA SHEET

Material Name: Penicillin G Procaine and Novobiocin Sodium Suspension
Revision date: 17-Jun-2014

Skin corrosion/irritation-Cat.2; H315 - Causes skin irritation
Serious eye damage/eye irritation-Cat.2A; H319 - Causes serious eye irritation
Sensitization, skin-Cat.1; H317 - May cause an allergic skin reaction
Sensitization, respiratory-Cat.1; H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

Xn - Harmful
Xi - Irritant

R38 - Irritating to skin.
R36 - Irritating to eyes.
R43 - May cause sensitization by skin contact.
R42/43 - May cause sensitization by inhalation and skin contact.

Data Sources:
The data contained in this MSDS may have been gathered from confidential internal sources, raw material suppliers, or from the published literature.

Reasons for Revision:
Updated Section 1 - Identification of the Substance/Preparation and the Company/Undertaking.
Updated Section 2 - Hazard Identification. Updated Section 3 - Composition / Information on Ingredients. Updated Section 4 - First Aid Measures. Updated Section 7 - Handling and Storage. Updated Section 8 - Exposure Controls / Personal Protection. Updated Section 11 - Toxicology Information. Updated Section 15 - Regulatory Information.

Prepared by:
Toxicology and Hazard Communication
Zoetis Global Risk Management

Zoetis Inc. believes that the information contained in this Safety Data Sheet is accurate, and while it is provided in good faith, it is without warranty of any kind, expressed or implied. If data for a hazard are not included in this document there is no known information at this time.

End of Safety Data Sheet