SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: TAMIFLU(R) Powder for Oral Suspension
Product code: SAP-10050891
Synonyms: TAMIFLU DRY SYRUP

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

Use: pharmaceutical active substance with antiviral effect

1.3. Details of the supplier of the safety data sheet

Company information:
Genentech, Inc.
1 DNA Way
South San Francisco
USA-CA 94080
United States of America

Enquiries: info.sds@roche.com
Phone: 001-(650) 225-1000

E-Mail: info.sds@roche.com
US Chemtrec phone: (800)-424-9300

1.4. Emergency telephone number

Emergency telephone number: US Chemtrec phone: (800)-424-9300

*1 referring to: Oseltamivir phosphate
TAMIFLU(R) Powder for Oral Suspension

SECTION 2: Hazards identification

Classification of the substance or mixture / Label elements

GHS Classification

Physical Hazards:
- 003 Combustible dust (No category)
  USH003 May form combustible dust concentrations in the air

Health Hazards:
- 3.4 Skin sensitization (Category 1)
  H317 May cause an allergic skin reaction.

Signalword: Warning
Label:

Precautionary statements:
- P281 Use personal protective equipment as required.
- P302 + P352 IF ON SKIN: Wash with plenty of water/ &
- P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P243 Take precautionary measures against static discharge.

Other hazards

Note
- no information available

SECTION 3: Composition/information on ingredients

Characterization
Oseltamivir phosphate and other inactive ingredients

Ingredients

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Concentration</th>
<th>GHS-Classification (pure ingredient)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oseltamivir phosphate</td>
<td>~ 4 %</td>
<td>- Combustible dust (No category), USH003</td>
</tr>
<tr>
<td>204255-11-8</td>
<td></td>
<td>- Serious eye damage/eye irritation (Category 2A), H319</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Skin sensitization (Category 1), H317</td>
</tr>
<tr>
<td>Monosodium citrate anhydrous</td>
<td>~ 6 %</td>
<td></td>
</tr>
<tr>
<td>powder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18996-35-5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Titanium dioxide</td>
<td>~ 2 %</td>
<td></td>
</tr>
<tr>
<td>13463-67-7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For the full text of the 'Hazard statements' mentioned in this Section, see Section 16.
SECTION 4: First aid measures

4.1. Description of first aid measures
Eye contact - rinse immediately with tap water for at least 20 minutes - open eyelids forcibly - consult a physician if irritation persists
Skin contact - remove immediately contaminated clothes, wash affected skin with water and soap - do not use any solvents
Inhalation - remove the casualty to fresh air and keep him/her calm - in the event of symptoms get medical treatment

4.2. Most important symptoms and effects, both acute and delayed
Note - no information available

4.3. Indication of any immediate medical attention and special treatment needed
Note to physician - treat symptomatically

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media - adapt extinguishing media to surrounding fire conditions
Flash point (liquid) not applicable

5.2. Special hazards arising from the substance or mixture
Specific hazards - formation of toxic and corrosive combustion gases (nitrous oxides, phosphorous oxides) possible - consider dust explosion hazard

5.3. Advice for firefighters
Protection of fire-fighters - precipitate gases/vapours/mists with water spray

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Personal precautions - ensure adequate ventilation

6.2. Environmental precautions
Environmental protection - do not allow to enter drains or waterways
### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up - collect solids (avoid dust formation) and hand over to waste removal

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

**Technical measures**
- processing in closed systems, if possible superposed by inert gas (e.g. nitrogen)
- local exhaust ventilation necessary
- avoid dust formation; high dust explosion hazard
- low probability of ignition: ground plant, avoid effective ignition sources

#### 7.2. Conditions for safe storage, including any incompatibilities

**Storage conditions**
- below 25 °C
- protected from light
- do not freeze

**Validity**
- see expiry date on the label
- ≤ 10 days, < 25 °C
- ≤ 17 days, 2 to 8 °C

*1 referring to: Oseltamivir phosphate
*2 referring to: TAMIFLU reconstituted suspension

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

**Threshold value (USA) air**
- ACGIH-TLV: 10 mg/m³ (not classifiable as a human carcinogen)
- OSHA-PEL: 15 mg/m³ (total dust)
- NIOSH-REL: 0.2 mg/m³

**Threshold value (Roche) air**
- IOEL (Internal Occupational Exposure Limit): 0.2 mg/m³

#### 8.2. Exposure controls

**Respiratory protection**
- Respiratory protection is recommended as a precaution to minimize exposure. Effective engineering controls are considered to be the primary means to control worker exposure. Respiratory protection should not substitute for feasible engineering controls.
- Respiratory protection is recommended for dusty operations.

**Hand protection**
- protective gloves (eg made of neoprene, nitrile or butyl rubber)
### SECTION 9: Physical and chemical properties

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>white to light yellow</td>
</tr>
<tr>
<td>Form</td>
<td>powder</td>
</tr>
<tr>
<td>Odor</td>
<td>almost odourless</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>( \log P_{\text{ow}} , 0.36 ) (octanol/water) pH 7.4 ( ^*1 )</td>
</tr>
<tr>
<td>pH value (20 °C)</td>
<td>3.0 to 5.0 (reconstituted suspension) ( ^*2 )</td>
</tr>
</tbody>
</table>

#### 9.2. Other information

- **Note**: no information available

- \( ^*1 \) referring to: Oseltamivir phosphate
- \( ^*2 \) referring to: TAMIFLU reconstituted suspension

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### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

- **Note**: no information available

#### 10.2. Chemical stability

- **Stability**: stable under the conditions mentioned in chapter 7

#### 10.3. Possibility of hazardous reactions

- **Note**: no information available

#### 10.4. Conditions to avoid

- **Note**: no information available

#### 10.5. Incompatible materials

- **Note**: no information available
10.6. Hazardous decomposition products

Note - no information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - MNLD > 2'000 mg/kg (oral, rat) *1
Subchronic toxicity - NOAEL 250 mg/kg/d (oral, rat; 4 weeks) *1
Local effects - eye: irritant (rabbit; OECD No. 405) *1
- not phototoxic (in vitro) *1
Sensitization - sensitizing (guinea pig) (OECD No. 406) *1
Mutagenicity - not mutagenic (various in vitro test systems) *1
Carcinogenicity - no information available
Reproductive toxicity - does not lower parental fertility (several species) *1
- not teratogenic (several species) *1
STOT-single exposure - no information available
STOT-repeated exposure - no information available
Aspiration hazard - no information available
Potential Health Effects - Exposure: Inhalation, Ingestion, Skin contact, Eye contact
- Carcinogenicity: formulation not listed by NTP, IARC or OSHA
- Carcinogenicity: IARC Gr3 not classifiable *3

*1 referring to: Oseltamivir phosphate
*3 referring to: Titanium dioxide

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity - moderately toxic for algae (Selenastrum capricornutum)
EbC50 (96 h) 59 mg/l
ErC50 (96 h) 463 mg/l
NOEbC (96 h) 10 mg/l
NOErC (96 h) 46 mg/l
(OECD No. 201) *1
- moderately toxic for planktonic crustaceans (Daphnia magna)
EC50 (48 h) 33 mg/l
(OECD No. 202) *1
- barely toxic for fish (carp)
  \( LC_{50} \) (96 h) > 100 mg/l
  (OECD No. 203) \(^{1}\)

- no adverse influence on substrate biodegradation (activated sludge)
  concentration (14 d) 30 mg/l (nominal concentration)
  (MITI Test II, OECD No. 302C) \(^{1}\)

**12.2. Persistence and degradability**

Ready biodegradability
- not readily biodegradable
  3 %, 28 days
  2.8 %, 14 days
  (\( CO_2 \) Evolution Test, Modified Sturm Test, OECD No. 301B) \(^{1}\)

Abiotic degradation
- slow degradation, photodegradation, no significant hydrolysis
  204 mg/l (measured initial concentration), water; HPLC
  ~ 13 %, 120 h, ~ 22 °C, under illumination
  ~ 2 %, 120 h, ~ 22 °C, dark \(^{1}\)

**12.3. Bioaccumulative potential**

Note
- no information available

**12.4. Mobility in soil**

Note
- no information available

**12.5. Results of PBT and vPvB assessment**

Note
- no information available

**12.6. Other adverse effects**

Note
- no information available

\(^{1}\) referring to: Oseltamivir phosphate

**SECTION 13: Disposal considerations**

**13.1. Waste treatment methods**

Waste from residues
- return to supplier or hand over to authorized disposal company
- observe local/national regulations regarding waste disposal
- incinerate in qualified installation with flue gas scrubbing
- DO NOT FLUSH unused medications or POUR them down a sink or drain. If available in your area, use takeback programs run by household hazardous waste collection programs or community pharmacies to dispose of unused and expired medicines. If you don’t have access to a takeback program, dispose of these medicines in the household trash by removing them from their original containers and mixing them with an undesirable substance, such as used coffee grounds or kitty litter.
### SECTION 14: Transport information

**Note**
- not classified as Dangerous Good according to the Dangerous Goods Regulations, proper shipping name non-regulated

### SECTION 15: Regulatory information

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

**TSCA Status**
- FDA Exemption - not on inventory

**Reporting Requirements**
- The United States Environmental Protection Agency (USEPA) has not established a Reportable Quantity (RQ) for releases of this material.
- In New Jersey, report all releases, which are likely to endanger the public health, harm the environment or cause a complaint, to the NJDEPE Hotline and to local officials.
- State and local regulations vary and may impose additional reporting requirements.

### SECTION 16: Other information

**Full text of H-Statements referred to under section 3**
- **H317** May cause an allergic skin reaction.
- **H319** Causes serious eye irritation.
- **USH003** May form combustible dust concentrations in the air

**Note**
- Please note this Safety Data Sheet for the bulk product does not apply for the finished, packaged medicinal product intended for the final user.

**Edition documentation**
- changes from previous version in sections 11, 15

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The information in this safety data sheet is based on current scientific knowledge. It should not be taken as expressing or implying any warranty concerning product characteristics.