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

**1.1. Product identifier**

<table>
<thead>
<tr>
<th>Product name</th>
<th>TNKase® Lyophilized Powder (50 mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product code</td>
<td>CSE-3071</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Use</th>
<th>pharmaceutical active substance (thrombolytic)</th>
</tr>
</thead>
</table>

**1.3. Details of the supplier of the safety data sheet**

<table>
<thead>
<tr>
<th>Company information</th>
<th>Enquiries: Genentech, Inc. 1 DNA Way South San Francisco USA-CA 94080 United States of America</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Phone 001-(650) 225-1000 E-Mail <a href="mailto:info.sds@roche.com">info.sds@roche.com</a> US Chemtrec phone: (800)-424-9300</td>
</tr>
</tbody>
</table>

**1.4. Emergency telephone number**

<table>
<thead>
<tr>
<th>Emergency telephone number</th>
<th>US Chemtrec phone: (800)-424-9300</th>
</tr>
</thead>
</table>

*1 referring to: Tenecteplase

### SECTION 2: Hazards identification

**Emergency Overview**

- **Form**: sterile, lyophilized powder
- **Color**: white to off-white
- **Odor**: odourless

**Classification of the substance or mixture / Label elements**

- **GHS Classification**: no classification and labelling according to GHS
SECTION 3: Composition/information on ingredients

Characterization

an enzyme used as a thrombolytic drug; 527 amino acid glycoprotein developed by introducing 3 modifications to the complementary DNA (cDNA) for natural human tPA. *1

0.5 M arginine phosphate buffer is used as a buffering agent to maintain pH at 7.3.

Ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Concentration</th>
<th>GHS-Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenecteplase</td>
<td>6.8 %</td>
<td></td>
</tr>
</tbody>
</table>

*1 referring to: Tenecteplase

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

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

Unsuitable extinguishing media
- full water jet
TNKase® Lyophilized Powder (50 mg)

5.2. Special hazards arising from the substance or mixture
Specific hazards - no particular hazards known

5.3. Advice for firefighters
Protection of fire-fighters - precipitate gases/vapours/mists with water spray
- use self-contained breathing apparatus
Special method of fire-fighting - if possible precipitate fire gases with a water jet

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
Suitable materials - glass

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions - below 30 °C
- protected from light
Validity - 8 hours, 2 to 8 °C
- see "best use before” date stated on the label, after opening the content should be used within a short period, any remaining reconstituted solution should be discarded
Packaging materials - vials

*2 referring to: TNKase reconstituted solution
SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Threshold Value (USA)</th>
<th>Threshold Value (Roche)</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEL</td>
<td>3 mg/m³ (4 x 15 min)</td>
<td>IOEL (Internal Occupational Exposure Limit): 0.06 mg/m³</td>
</tr>
<tr>
<td>ACGIH-TLV</td>
<td>1 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

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.
- in case of open handling or accidental release: particle mask or respirator with independent air supply

Hand protection
- protective gloves (neoprene, nitrile or butyl rubber)

Eye protection
- safety glasses

*1 referring to: Tenecteplase
*3 referring to: Phosphoric acid

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>white to off-white</td>
</tr>
<tr>
<td>Form</td>
<td>sterile, lyophilized powder</td>
</tr>
<tr>
<td>Odor</td>
<td>odourless</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>~ 65 kDa</td>
</tr>
<tr>
<td>Solubility</td>
<td>148’700 mg/l, water (20 °C)</td>
</tr>
<tr>
<td>Partition coeff.</td>
<td>log P&lt;sub&gt;ow&lt;/sub&gt; = -4.20 (octanol/water°C)</td>
</tr>
<tr>
<td>pH value</td>
<td>(20 °C) &lt; 0.5 (100 g/l)</td>
</tr>
<tr>
<td></td>
<td>(20 °C) 11.4 (100 g/l)</td>
</tr>
<tr>
<td></td>
<td>7.3</td>
</tr>
</tbody>
</table>

9.2. Other information

Note: no information available

*1 referring to: Tenecteplase
*2 referring to: TNKase reconstituted solution
*3 referring to: Phosphoric acid
*4 referring to: L-Arginine
SECTION 10: Stability and reactivity

10.1. Reactivity

Note - no information available

10.2. Chemical stability

Stability - does not contain any antimicrobial preservative; therefore, care must be taken to ensure the sterility of the prepared reconstituted solution
- do not freeze the reconstituted solution

10.3. Possibility of hazardous reactions

Note - no information available

10.4. Conditions to avoid

Conditions to avoid - temperatures above 30 °C
- light

10.5. Incompatible materials

Materials to avoid - alkalis (strong exothermic reaction), metals (danger of ignition), metallic oxides (danger of ignition), nitromethane (risk of explosion)*3

10.6. Hazardous decomposition products

Note - not combustible
- very hygroscopic

*3 referring to: Phosphoric acid

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity
- not bioavailable by oral administration
- TD₀ > 50 mg/kg (i.v., rat)
- LD₅₀ 1'530 mg/kg (oral, rat)
- LC₅₀ > 850 mg/m³ (inhal., rat, 1 h)
- LD₅₀ 2'740 mg/kg (dermal, rabbit)
- LD₅₀ > 5'110 mg/kg (oral, rat)

Subacute toxicity
- LD₀ 10 mg/kg/d (i.v., rat, 14 d)

Local effects
- skin: non-irritant (rabbit; OECD No. 404)
- eye: not severe irritant or corrosive
- skin: corrosive

*1 replacing edition of: 26.1.16
Date: 29.2.16/LS (SEISMO)
TNKase® Lyophilized Powder
(50 mg)

Sensitization
anaphylactic reactions may occur following the intravenous
application of proteins; rare cases of hypersensitivity have been
described

Mutagenicity
- negative, both with and without metabolic activation (in vitro test
system; OECD No. 473 (Mammalian Cytogenic Test))

Carcinogenicity
- no information available

Reproductive toxicity
- NOEL (maternal or developmental toxicity) = 5 mg/kg (approx.
8-10 times the human dose) (i.v., rabbit)

STOT-single exposure
- no information available

STOT-repeated exposure
- no information available

Aspiration hazard
- no information available

Note
- prolonged bleeding and effects on the blood coagulation system
may occur

Potential Health Effects
- Exposure: Inhalation, Ingestion, Skin contact, Eye contact
- Carcinogenicity: formulation not listed by NTP, IARC or OSHA

*1 referring to: Tenecteplase
*3 referring to: Phosphoric acid
*4 referring to: L-Arginine

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity
- barely toxic for fish (zebrafish)
  LC$_{50}$ (96 h) 2800 mg/l
  NOEC (96 h) 1000 mg/l
  (OECD No. 203, semistatic)
- barely toxic for planktonic crustaceans (Daphnia magna)
  NOEC (24 h) 1000 mg/l
  (OECD No. 202)
- barely toxic for microorganisms (Pseudomonas putida)
  EC$_{10}$ (16 h) > 10000 mg/kg
  (DIN 38'412, part 8)
- no information available
- moderately toxic for fish (fish, unspecified)
  LC$_{50}$ 70 mg/l

12.2. Persistence and degradability

Ready biodegradability
- readily biodegradable
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 - harmful effect due to change of pH *

*1 referring to: Tenecteplase
*3 referring to: Phosphoric acid
*4 referring to: L-Arginine

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Waste from residues - observe local/national regulations regarding waste disposal

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 (1-609-292-5560) and to local officials.
- State and local regulations vary and may impose additional reporting requirements.
TNKase® Lyophilized Powder  
(50 mg)

<table>
<thead>
<tr>
<th>Note</th>
<th>- Please note this Safety Data Sheet for the bulk product does not apply for the finished, packaged medicinal product intended for the final user.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edition documentation</td>
<td>- changes from previous version in sections 2, 4, 5, 6, 7, 12, 16</td>
</tr>
</tbody>
</table>

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.