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

1.1. Product identifier

Product No 9911
Product name Phospho-Erk1/2 Pathway Sampler Kit
Kit Component
9427: Phospho-c-Raf (Ser338) (56A6) Rabbit mAb
9154: Phospho-MEK1/2 (Ser217/221) (41G9) Rabbit mAb
4370: Phospho-p44/42 MAPK (Thr202/Tyr204) (D13.14.4E) XP® Rabbit mAb
11989: Phospho-p90RSK (Ser380) (D3H11) Rabbit mAb
9595: Phospho-MSK1 (Thr581) Antibody
7074: Anti-rabbit IgG, HRP-linked Antibody

Reach registration number
This substance/mixture contains only ingredients which have been registered, or are exempt from registration, according to Regulation (EC) No. 1907/2006.

Contains

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Index No.</th>
<th>CAS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>glycerol (&gt;100%)</td>
<td>Not Listed</td>
<td>56-81-5</td>
</tr>
<tr>
<td>sodium azide (0 - 10%)</td>
<td>011-004-00-7</td>
<td>26628-22-8</td>
</tr>
</tbody>
</table>

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

Identified uses For research use only

1.3. Details of the supplier of the safety data sheet

Importer (Applicable in EU only)
Cell Signaling Technology Europe B.V.
Dellaertweg 9b
2316 WZ Leiden
The Netherlands
TEL: +31 (0)71 7200 200
FAX: +31 (0)71 891 0019

Manufacturer Cell Signaling Technology, Inc.
3 Trask Lane
Danvers, MA 01923
United States
TEL: +1 978 867 2300
FAX: +1 978 867 2400

Website www.cellsignal.com
E-mail Address info@cellsignal.eu

1.4. Emergency telephone number

CHEMTREC 24 hours a day, 7 days a week, 365 days a year
+1 703 527 3887 (INTERNATIONAL) +1 800 424 9300 (NORTH AMERICA)

Europe 112

SECTION 2: Hazards identification
2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

This substance/mixture does not meet the criteria for classification in accordance with Regulation (EC) No. 1272/2008

2.2. Label elements

2.3. Other hazards

May produce an allergic reaction.

For the full text of the H-phrases & EUH-phrases mentioned in this Section, see Section 16

SECTION 3. Composition/information on ingredients

Kit Component

The following kit components contain the ingredients listed in the table below:

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No.</th>
<th>Weight-%</th>
<th>EC No</th>
<th>Classification (1272/2008)</th>
<th>REACH Registration Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>glycerol</td>
<td>56-81-5</td>
<td>30-60</td>
<td>200-289-5</td>
<td></td>
<td>no data available</td>
</tr>
<tr>
<td>sodium azide</td>
<td>26628-22-8</td>
<td>&lt;0.2</td>
<td>247-852-1</td>
<td>Acute Tox. 2 (H300)</td>
<td>no data available</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Aquatic Acute 1 (H400)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Aquatic Chronic 1 (H410)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(EUH032)</td>
<td></td>
</tr>
</tbody>
</table>

Kit Component

The following kit components contain the ingredients listed in the table below:

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No.</th>
<th>Weight-%</th>
<th>EC No</th>
<th>Classification (1272/2008)</th>
<th>REACH Registration Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>glycerol</td>
<td>56-81-5</td>
<td>30-60</td>
<td>200-289-5</td>
<td></td>
<td>no data available</td>
</tr>
</tbody>
</table>

For the full text of the H-phrases & EUH-phrases mentioned in this Section, see Section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice

Use first aid treatment according to the nature of the injury. When symptoms persist or in all cases of doubt seek medical advice.

Inhalation

IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Get medical attention immediately if symptoms occur.

Skin contact

Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.

Eye contact

Rinse thoroughly with plenty of water, also under the eyelids. Keep eye wide open while rinsing. Get medical attention immediately if irritation persists.
9911 Phospho-Erk1/2 Pathway Sampler Kit

Ingestion
Clean mouth with water and afterwards drink plenty of water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person.

4.2. Most important symptoms and effects, both acute and delayed
Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing.

4.3. Indication of any immediate medical attention and special treatment needed
Notes to physician
Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media
None.

5.2. Special hazards arising from the substance or mixture
Thermal decomposition can lead to release of irritating gases and vapors.

5.3. Advice for firefighters
Wear self-contained breathing apparatus and protective suit. Use personal protective equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
For non-emergency personnel
Avoid contact with skin, eyes and clothing. Use personal protective equipment. For personal protection see section 8.

For emergency responders
Use personal protection recommended in Section 8.

6.2. Environmental precautions
Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevent entry into waterways, sewers, basements or confined areas.

6.3. Methods and material for containment and cleaning up
Methods for containment
Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

6.4. Reference to other sections
See Sections 8 & 13 for additional information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Wear personal protective equipment. See section 8. Avoid contact with skin, eyes and clothing. Remove and wash contaminated clothing before re-use. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3. Specific end use(s)
SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>European Union</th>
<th>United Kingdom</th>
<th>France</th>
<th>Spain</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>glycerol</td>
<td>STEL 30 mg/m³</td>
<td>TWA 10 mg/m³</td>
<td>TWA 10 mg/m³</td>
<td>Ceiling / Peak: 400 mg/m³</td>
<td>TWA: 200 mg/m³</td>
</tr>
<tr>
<td></td>
<td>TWA 10 mg/m³</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sodium azide</td>
<td>TWA 0.1 mg/m³</td>
<td>STEL 0.3 mg/m³</td>
<td>TWA 0.1 mg/m³</td>
<td>Ceiling / Peak: 0.4 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STEL 0.3 mg/m³</td>
<td>TWA 0.1 mg/m³</td>
<td>STEL 0.3 mg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>S*</td>
<td></td>
<td>P*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Italy</th>
<th>Portugal</th>
<th>Netherlands</th>
<th>Finland</th>
<th>Denmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>glycerol</td>
<td>STEL 50 mg/m³</td>
<td>TWA 10 mg/m³</td>
<td>TWA 10 mg/m³</td>
<td>TWA 10 mg/m³</td>
<td>TWA 10 mg/m³</td>
</tr>
<tr>
<td></td>
<td>TWA 10 mg/m³</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sodium azide</td>
<td>TWA 0.1 mg/m³</td>
<td>STEL 0.2 mg/m³</td>
<td>Huid*</td>
<td>TWA 0.1 mg/m³</td>
<td>TWA 0.1 mg/m³</td>
</tr>
<tr>
<td></td>
<td>STEL 0.3 mg/m³</td>
<td>TWA 0.2 mg/m³</td>
<td>STEL 0.3 mg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ceiling 0.2 mg/m³</td>
<td></td>
<td></td>
<td>TWA 1.0 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C(A4)</td>
<td></td>
<td></td>
<td>iho*</td>
<td>H*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Appropriate engineering controls
Showers, eyewash stations, and ventilation systems.

Individual protection measures, such as personal protective equipment
Eye/face protection
Safety glasses with side-shields

Skin protection
Hand protection
Impervious gloves.

Other
Wear suitable protective clothing.

Respiratory protection
In case of inadequate ventilation wear respiratory protection.

Environmental Exposure Controls
No information available.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Information on the known physical chemical properties of each component within Kit are given below. If not included, information is either not available or not applicable. Refer to individual kit component SDS for further information.

<table>
<thead>
<tr>
<th>Kit Component</th>
<th>9427: Phospho-c-Raf (Ser338) (56A6) Rabbit mAb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Clear</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>pH VALUE</td>
<td>7.5</td>
</tr>
<tr>
<td>Remarks</td>
<td>@ 20 °C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Kit Component</th>
<th>9154: Phospho-MEK1/2 (Ser217/221) (41G9) Rabbit mAb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
</tbody>
</table>
### Appearance
Clear

### Color
Colorless

### pH VALUE
7.5

### Remarks
@ 20 °C

### Kit Component
**4370: Phospho-p44/42 MAPK (Thr202/Tyr204) (D13.14.4E) XP® Rabbit mAb**
- **Physical state**: Liquid
- **Appearance**: Clear
- **Color**: Colorless
- **pH VALUE**: 7.5
- **Remarks**: @ 20 °C

### Kit Component
**11989: Phospho-p90RSK (Ser380) (D3H11) Rabbit mAb**
- **Physical state**: Liquid
- **Appearance**: Clear
- **Color**: Colorless
- **pH VALUE**: 7.5
- **Remarks**: @ 20 °C

### Kit Component
**9595: Phospho-MSK1 (Thr581) Antibody**
- **Physical state**: Liquid
- **Appearance**: Clear
- **Color**: Colorless
- **pH VALUE**: 7.5
- **Remarks**: @ 20 °C

### Kit Component
**7074: Anti-rabbit IgG, HRP-linked Antibody**
- **Physical state**: Liquid
- **Appearance**: Clear
- **Color**: Colorless
- **pH VALUE**: 7.5
- **Remarks**: @ 20 °C

## SECTION 10: Stability and reactivity

### 10.1. Reactivity
No information available.

### 10.2. Chemical stability
Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

<table>
<thead>
<tr>
<th>Hazardous polymerization</th>
<th>Hazardous polymerization does not occur.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous reactions</td>
<td>None under normal processing.</td>
</tr>
</tbody>
</table>

### 10.4. Conditions to avoid
Extremes of temperature and direct sunlight. Over a period of time, sodium azide may react with copper, lead, brass, or solder in plumbing systems to form an accumulation of the HIGHLY EXPLOSIVE compounds of lead azide & copper azide.

### 10.5. Incompatible materials
Strong oxidizing agents. Strong acids.

### 10.6. Hazardous decomposition products
Nitrogen oxides (NOx).
SECTION 11: Toxicological information

11.1. Information on toxicological effects

Product Information
This material should only be handled by, or under the close supervision of, those properly qualified in the handling and use of potentially hazardous chemicals. It should be borne in mind that the toxicological and physiological properties of this compound is not well defined.

Component Information

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>LD50 Oral (Rat)</th>
<th>LD50 Dermal (Rabbit)</th>
<th>LC50 Inhalation (Rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>glycerol</td>
<td>12600 mg/kg</td>
<td>&gt; 10 g/kg</td>
<td>&gt; 570 mg/m³ 1 h</td>
</tr>
<tr>
<td>sodium azide</td>
<td>27 mg/kg</td>
<td>20 mg/kg (Rabbit) = 50 mg/kg (Rat)</td>
<td>-</td>
</tr>
</tbody>
</table>

Information on likely routes of exposure

Inhalation
Avoid breathing vapors or mists May cause irritation of respiratory tract

Eye contact
Avoid contact with eyes May cause slight irritation

Skin contact
Avoid contact with skin

Ingestion
Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Symptoms
Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing

Skin and Eye Corrosion/Irritation
No information available

Sensitization
No information available

Mutagenic effects
No information available

Carcinogenic effects
No information available

Reproductive toxicity
No information available.

Systemic Target Organ Toxicity (STOT)
No information available

Aspiration Hazard
No information available.

SECTION 12: Ecological information

12.1. Toxicity

Product Information
No information available

Component Information

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Toxicity to algae</th>
<th>Toxicity to fish</th>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>glycerol</td>
<td>-</td>
<td>LC50 51 - 57 mL (Oncorhynchus mykiss) 96 h</td>
<td>EC50 500 mg/L (Daphnia magna) 24 h</td>
</tr>
<tr>
<td>sodium azide</td>
<td>EC50 0.35 mg/L</td>
<td>LC50 0.8 mg/L (Oncorhynchus)</td>
<td>LC100 1 mg/L (Orconectes rusticus)</td>
</tr>
</tbody>
</table>
9911 Phospho-Erk1/2 Pathway Sampler Kit

| (Pseudokirchneriella subcapitata) 96 h | mykiss) 96 h LC50 5.46 mg/L (Pimephales promelas) 96 h LC50 0.7 mg/L (Lepomis macrochirus) 96 h | 96 h |

12.2. Persistence and degradability

No information available.

12.3. Bioaccumulative potential


<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Octanol-Water Partition Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>glycerol</td>
<td>-1.76</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

No information available.

12.6. Other adverse effects

No information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues / unused products
Dispose of in accordance with local regulations.

Contaminated packaging
Empty containers should be taken to an approved waste handling site for recycling or disposal.

Other information
Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14: Transport information

IMDG/IMO

14.1 UN number Not regulated
14.2 UN proper shipping name Not regulated
14.3 Transport hazard class(es) Not regulated
14.4 Packing group Not regulated
14.5 Environmental hazards None
14.6 Special precautions for user Not regulated
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not regulated

IATA

14.1 UN number Not regulated
14.2 UN proper shipping name Not regulated
SECTION 15: Regulatory information

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

Candidate List of Substances of Very High Concern for Authorization Information

This product does not contain Substances of Very High Concern (SVHC).

SEVESO Directive Information

This product does not contain substances identified in the SEVESO Directive.

International inventories

<table>
<thead>
<tr>
<th>International inventories</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA 8(b)</td>
<td>-</td>
</tr>
<tr>
<td>DSL/NDSL</td>
<td>Complies</td>
</tr>
<tr>
<td>EINECS/ELINCS</td>
<td>-</td>
</tr>
<tr>
<td>ENCS</td>
<td>-</td>
</tr>
<tr>
<td>IECSC</td>
<td>Complies</td>
</tr>
<tr>
<td>KECL</td>
<td>-</td>
</tr>
<tr>
<td>PICCS</td>
<td>-</td>
</tr>
<tr>
<td>AICS</td>
<td>Complies</td>
</tr>
</tbody>
</table>

International inventories legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

15.2. Chemical safety assessment

For this substance a chemical safety assessment has not been carried out

SECTION 16: Other information

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

H300 - Fatal if swallowed
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects
EUH032 - Contact with acids liberates very toxic gas

Classification procedure: Expert judgment and weight of evidence determination.
Issuing Date: 2018-10-30

Disclaimer

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.