



Cell Signaling

TECHNOLOGY®

SAFETY DATA SHEET (SDS): According to the OSHA Hazard Communication Standard 29 CFR 1910.1200

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SECTION 1. Identification

Product identifier

Product number 8402
Product name DVL2_HUMAN 186-198 AQUA Peptide
UN number UN2924

Recommended use of the chemical and restrictions on use

Identified uses This product is intended for research purposes only.
Uses advised against This product is not intended for use in diagnostic procedures or therapeutics.
This product is not intended for use in humans or animals.

Manufacturer, importer, supplier

Manufacturer address Cell Signaling Technology, Inc.
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Emergency telephone number In case of emergency call CHEMTREC 1-800-424-9300

SECTION 2. Hazard(s) identification

Classification

This substance/mixture is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

| | |
|------------------------------------------|------------|
| Skin corrosion/irritation | Category 1 |
| Serious eye damage/eye irritation | Category 1 |
| Flammable liquids | Category 2 |

GHS Label elements, including precautionary statements



Signal Word
Danger

Hazard statement(s)

Highly flammable liquid and vapor
Causes severe skin burns and eye damage

Precautionary Statement(s)

Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Ground/Bond container and receiving equipment
Take precautionary measures against static discharge
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Store in a well-ventilated place. Keep cool
Dispose of contents/container to an approved waste disposal plant

Supplementary Hazard Information

Hazards not otherwise classified (HNOC) None.

SECTION 3. Composition/information on ingredients

| Chemical Name | CAS No | Weight % |
|----------------------|---------|----------|
| acetonitrile | 75-05-8 | 10-30 |
| trifluoroacetic acid | 76-05-1 | 0.1-1 |

SECTION 4. First-aid measures

| | |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Eye contact | Rinse thoroughly with plenty of water, also under the eyelids. Keep eye wide open while rinsing. |
| Skin contact | Immediate medical attention is required. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. |
| Inhalation | Move to fresh air. Immediate medical attention is required. Move to fresh air in case of accidental inhalation of vapors. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. |
| Ingestion | Immediate medical attention is required. Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person. Remove from exposure, lie down this is a test. Clean mouth with water. If swallowed, do not induce vomiting - seek medical advice. |

Most important symptoms and effects, both acute and delayed

Symptoms of acute acetonitrile exposure include: chest pain, dizziness, weakness, tightness in the chest, nausea, vomiting, tachycardia, hypotension, short and shallow respiration, headache, restlessness and seizures.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

Advice for emergency responders

| | |
|-----------------------------------|---------------------------------------------------------------------------------------------------|
| General advice | Immediate medical attention is required. Show this safety data sheet to the doctor in attendance. |
| Protection of first-aiders | Use personal protective equipment. Avoid contact with skin, eyes and clothing. |

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable Extinguishing Media Cool containers / tanks with water spray.

Unsuitable Extinguishing Media CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors. In the event of fire and/or explosion do not breathe fumes.

Explosion Data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6. Accidental release measures**Personal precautions, protective equipment and emergency procedures**

For non-emergency personnel Evacuate personnel to safe areas. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Remove all sources of ignition. Heat, flames and sparks. Ensure adequate ventilation. Keep people away from and upwind of spill/leak.

Other information Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Do not allow material to contaminate ground water system. Should not be released into the environment. Prevention of fire and explosion. A vapor suppressing foam may be used to reduce vapors. Try to prevent the material from entering drains or water courses. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

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 Dike far ahead of liquid spill for later disposal. Soak up with inert absorbent material. Take up mechanically and collect in suitable container for disposal. Clean contaminated surface thoroughly. Prevent product from entering drains. Dam up. After cleaning, flush away traces with water.

SECTION 7. Handling and storage**Precautions for safe handling**

Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Use only in an area containing flame proof equipment. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Avoid contact with skin and eyes. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation at machinery. There is a hazard associated with rags, paper or any other material used to remove spills which become soaked with product. Avoid accumulation of these: they are to be disposed off safely after use. Avoid static electricity build up with connection to earth.

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

Packaging material No information available.

Incompatible products Incompatible with strong acids and bases. Incompatible with oxidizing agents.

SECTION 8. Exposure controls/personal protection

Control parameters

| Occupational exposure limit values | | | |
|------------------------------------|--------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| Chemical Name | ACGIH TLV | OSHA PEL | NIOSH REL |
| acetonitrile | S* TWA : 20 ppm | TWA : 40 ppm TWA : 70 mg/m ³ TWA : 5 mg/m ³ S* | IDLH : 500 ppm IDLH : 25 mg/m ³ TWA : 20 ppm TWA : 34 mg/m ³ |

Appropriate engineering controls

Showers, eyewash stations, and ventilation systems.

Individual protection measures, such as personal protective equipment

Personal protective equipment (PPE) needs to be selected depending on the implemented engineering controls, frequency/duration of work activities and the concentrations of the hazardous substance.

| | |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Eye/face protection | Tightly fitting safety goggles. Face-shield. |
| Skin and body protection | Wear protective gloves/clothing. |
| Respiratory protection | If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations. |
| Hygiene measures | When using, do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing. Keep away from food, drink and animal feeding stuffs. Contaminated work clothing should not be allowed out of the workplace. Avoid contact with skin, eyes and clothing. For environmental protection, remove and wash all contaminated protective equipment before re-use. Wear suitable gloves and eye/face protection. |

SECTION 9. Physical and chemical properties

Information on basic physical and chemical properties

| | |
|------------------------------------------------|---------------------------|
| Physical state | Liquid |
| Appearance | Clear |
| Odor | Aromatic of ether, sweet |
| Color | Colorless |
| Odor Threshold | ~170 ppm |
| pH | 1.93 @ 20 °C |
| Melting point/freezing point | No information available |
| Initial boiling point and boiling range | 81.6 °C @ 1 atm |
| Flash point | 12.5 °C Closed cup |
| Evaporation rate | No information available |
| Flammability (solid, gas) | No information available |
| Upper flammability limit | No information available. |
| Lower flammability limit | No information available. |
| Vapor pressure | No information available |
| Vapor density | No information available |
| Relative density | No information available |
| Solubility | No information available. |
| Solubility in other solvents | No information available |
| Partition coefficient: n-octanol/water | No information available |
| Autoignition temperature | No information available |

| | |
|----------------------------------|---------------------------|
| Decomposition temperature | No information available. |
| Explosive properties | No information available |
| Oxidizing properties | No information available |
| VOC content | No information available |
| Viscosity | No information available. |
| Density | No information available. |

SECTION 10. Stability and reactivity

Reactivity

No information available.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

| | |
|---------------------------------|-------------------------------|
| Hazardous reactions | None under normal processing. |
| Hazardous polymerization | None under normal processing. |

Conditions to Avoid

Heat, flames and sparks. Exposure to air or moisture over prolonged periods.

Incompatible Materials

Incompatible with strong acids and bases. Incompatible with oxidizing agents.

Hazardous Decomposition Products

Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 11. Toxicological information

Information on likely routes of exposure

| | |
|---------------------|---------------------------------------------------------------------------------|
| Inhalation | Vapours may irritate throat and respiratory system. |
| Eye contact | May cause irreversible damage to eyes. |
| Skin contact | Prolonged skin contact may cause burns. |
| Ingestion | Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. |

Information on toxicological effects

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.

| Chemical Name | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|----------------------|----------------------|-------------------------|------------------------------------|
| acetonitrile | = 1327 mg/kg (Rat) | = 1250 mg/kg (Rabbit) | = 7500 ppm (Rat) 4 h |
| trifluoroacetic acid | - | - | = 10,000 mg/m ³ (Rat) |

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

| | |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Symptoms | Symptoms of acute acetonitrile exposure include: chest pain, dizziness, weakness, tightness in the chest, nausea, vomiting, tachycardia, hypotension, short and shallow respiration, headache, restlessness and seizures. |
| Sensitization | No information available. |
| Mutagenic effects | No information available. |

| | |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Carcinogenicity | No component of this product present at levels greater than or equal to 0.1% is identifiable as probable, possible or confirmed carcinogen by IARC, ACGIH, NTP, or OSHA. |
| Reproductive toxicity | No information available. |
| STOT - single exposure | No information available. |
| STOT - repeated exposure | No information available. |
| Target Organ Effects | Central nervous system (CNS), Respiratory system, Kidney, Liver, Heart. |
| Neurological effects | No information available. |
| Aspiration Hazard | No information available. |
| Other information | Systemic effects are attributable to the conversion of acetonitrile to cyanide. Onset of symptoms are delayed.... because the parent molecule has no apparent intrinsic toxicity, but undergoes a two-step activation reaction mediated by cytochrome P450 enzymes (p-450IIE1). |

SECTION 12. Ecological information

Ecotoxicity

Product does not present an aquatic toxicity hazard based on known or supplied information.

| Chemical Name | Toxicity to algae | Toxicity to fish | Toxicity to daphnia and other aquatic invertebrates |
|---------------|-------------------|-------------------------------------------|-----------------------------------------------------|
| acetonitrile | - | LC50 1640 mg/L (Pimephales promelas) 96 h | EC50 5838 mg/L (Daphnia pulex) 18 h |

| | |
|--------------------------------------|------------------------------|
| Persistence and degradability | Product is biodegradable. |
| Bioaccumulation | Not likely to bioaccumulate. |
| Mobility | No information available |

| Chemical Name | Octanol-Water Partition Coefficient |
|---------------|-------------------------------------|
| acetonitrile | -0.34 |

Other adverse effects

No information available.

SECTION 13. Disposal considerations

Waste Disposal Methods

Should not be released into the environment.

Disposal considerations

Do not empty into drains; dispose of this material and its container in a safe way.

SECTION 14. Transport information

DOT

| | |
|----------------------------------------|---------------------------------------------------------------------------|
| UN number | UN2924 |
| UN proper shipping name | Flammable liquids, corrosive, n.o.s. (acetonitrile, trifluoroacetic acid) |
| Transport hazard class(es) | 3(8) |
| Packing group | II |
| Special provisions | IB2, T11, TP2, TP27 |
| Emergency response guide number | 132 |

IATA

| | |
|-----------------------------------|---------------------------------------------------------------------------|
| UN number | UN2924 |
| UN proper shipping name | Flammable liquids, corrosive, n.o.s. (acetonitrile, trifluoroacetic acid) |
| Transport hazard class(es) | 3(8) |
| Packing group | II |
| ERG code | 3CH |

SECTION 15. Regulatory information

North American Inventory Listing

| Chemical Name | TSCA 8(b) | TSCA 12(b) | DSL | NDSL |
|----------------------|-----------|----------------|--------|------------|
| acetonitrile | Listed | Section 4: 1 % | Listed | Not Listed |
| trifluoroacetic acid | Listed | Not Listed | Listed | Not Listed |

Canadian Workplace Hazardous Materials Information System (WHMIS) Classification

| | |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------|
|  | Class B2 - Flammable Liquids Class E - Corrosive Material at >= 1% |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------|

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

| Chemical Name | CAS No | SARA 313 - Threshold Values % |
|---------------|---------|-------------------------------|
| acetonitrile | 75-05-8 | 1.0 |

SARA 311/312 Hazard Categories

| | |
|------------------------------------------|-----|
| Acute Health Hazard | Yes |
| Chronic Health Hazard | No |
| Fire Hazard | Yes |
| Sudden Release of Pressure Hazard | No |
| Reactive Hazard | No |

Clean Water Act

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42):

| Chemical Name | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants | CWA - Hazardous Substances | CWA - Bioaccumulative Chemicals of Concern (BCCs) |
|---------------|-----------------------------|------------------------|---------------------------|----------------------------|---------------------------------------------------|
| acetonitrile | Not Listed | Listed | Listed | Not Listed | Not Listed |

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302):

| Chemical Name | Hazardous Substances RQs | Extremely Hazardous Substances RQs |
|---------------|--------------------------|------------------------------------|
| acetonitrile | 5000 lb | Not Listed |

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

This product contains the following U.S. State Right to Know chemicals:

| Chemical Name | New Jersey | Massachusetts | Pennsylvania |
|----------------------|-------------------|----------------------|---------------------|
| acetonitrile | Listed | Listed | Listed |
| trifluoroacetic acid | Listed | Not Listed | Not Listed |

U.S. FIFRA Label Information

This product does not contain any substances regulated as pesticides.

US Commerce Department - Export Administration Regulations Information

This product does not contain any substances regulated under the Chemical Weapons Convention (CWC).

U.S. Drug Enforcement Administration Information

This product does not contain any substances regulated under the DEA.

SECTION 16. Other information

Issuing Date: 2014-07-25

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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.

End of Safety Data Sheet