

OMIC

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

Issue date: 2022-12-07

Revision date: 2022-12-07

Version: 1.0

SECTION 1: Identification

1.1. Product identifier

Product form : Mixture
Product name : OMIC

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

Use of the substance/mixture : SARS-CoV-2 Omicron (BA.4/5) spike protein solution Reference Material, for laboratory use only

1.3. Details of the supplier of the safety data sheet

National Research Council Canada
1200 Montreal Road
Ottawa, Ontario, Canada K1A 0R6
T 1-613-993-2359



National Research
Council Canada

Conseil national de
recherches Canada

1.4. Emergency telephone number

Emergency number : CANUTEC 1-613-996-6666

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS classification

Not classified

2.2. Label elements

GHS labelling

No labelling applicable

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

| Name | Product identifier | % By weight |
|----------------------------------------------------------------|----------------------|-------------|
| Water | CAS-No. 7732-18-5 | 98.63 |
| Sodium chloride | CAS-No. 7647-14-5 | 0.80 |
| 4-(2-Hydroxyethyl)piperazine-1-ethanesulfonic acid sodium salt | CAS-No. 75277-39-3 | 0.30 |
| Phosphoric acid, disodium salt | CAS-No. 7558-79-4 | 0.15 |
| SARS-CoV-2 Omicron (BA.4/5) spike protein | CAS-No. Not assigned | 0.07 |
| Phosphoric acid, potassium salt (1:1) | CAS-No. 7778-77-0 | 0.024 |
| Potassium chloride | CAS-No. 7447-40-7 | 0.02 |

OMIC

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures after inhalation : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.
- First-aid measures after skin contact : If skin irritation occurs: Wash skin with plenty of water. Obtain medical attention if irritation persists.
- First-aid measures after eye contact : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
- First-aid measures after ingestion : Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/effects after inhalation : May cause irritation to the respiratory tract.
- Symptoms/effects after skin contact : May cause skin irritation. Repeated exposure may cause skin dryness or cracking.
- Symptoms/effects after eye contact : May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.
- Symptoms/effects after ingestion : May be harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhea.

4.3. Indication of any immediate medical attention and special treatment needed

Symptoms may be delayed. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.
- Unsuitable extinguishing media : None known.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : Products of combustion may include, and are not limited to: oxides of carbon.

5.3. Advice for firefighters

- Protection during firefighting : Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

6.2. Methods and material for containment and cleaning up

- For containment : Absorb and/or contain spill with inert material (sand, vermiculite or other appropriate material), then place in suitable container. Do not flush into surface water or sewer system. Wear recommended personal protective equipment.
- Methods for cleaning up : Sweep or shovel spills into a convenient waste disposal container. Provide ventilation

OMIC

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

6.3. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection".

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Avoid contact with skin and eyes. Avoid breathing mist, vapours. Do not swallow. Handle and open container with care. When using do not eat, drink or smoke.
- Hygiene measures : Wash contaminated clothing before reuse. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Keep out of the reach of children. Store tightly closed in a dry, cool and well-ventilated place. Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| Water (7732-18-5) | |
|-------------------|----------------|
| ACGIH | Not applicable |
| OSHA | Not applicable |
| IDLH | Not applicable |
| NIOSH | Not applicable |

| Sodium chloride (7647-14-5) | |
|-----------------------------|----------------|
| ACGIH | Not applicable |
| OSHA | Not applicable |
| IDLH | Not applicable |
| NIOSH | Not applicable |

| 4-(2-Hydroxyethyl)piperazine-1-ethanesulfonic acid sodium salt (75277-39-3) | |
|-----------------------------------------------------------------------------|----------------|
| ACGIH | Not applicable |
| OSHA | Not applicable |
| IDLH | Not applicable |
| NIOSH | Not applicable |

| Phosphoric acid, disodium salt (7558-79-4) | |
|--------------------------------------------|----------------|
| ACGIH | Not applicable |
| OSHA | Not applicable |
| IDLH | Not applicable |
| NIOSH | Not applicable |

| SARS-CoV-2 Omicron (BA.4/5) spike protein (Not assigned) | |
|----------------------------------------------------------|----------------|
| ACGIH | Not applicable |
| OSHA | Not applicable |
| IDLH | Not applicable |
| NIOSH | Not applicable |

OMIC

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

| Phosphoric acid, potassium salt (1:1) (7778-77-0) | |
|----------------------------------------------------------|----------------|
| ACGIH | Not applicable |
| OSHA | Not applicable |
| IDLH | Not applicable |
| NIOSH | Not applicable |

| Potassium chloride (7447-40-7) | |
|---------------------------------------|----------------|
| ACGIH | Not applicable |
| OSHA | Not applicable |
| IDLH | Not applicable |
| NIOSH | Not applicable |

8.2. Exposure controls

| | |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Appropriate engineering controls | : Ensure good ventilation of the work station. |
| Hand protection | : Wear suitable gloves. |
| Eye protection | : Safety glasses or goggles are recommended when using product. |
| Skin and body protection | : Wear suitable protective clothing. |
| Respiratory protection | : In case of insufficient ventilation, wear suitable respiratory equipment. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. |
| Environmental exposure controls | : Avoid release to the environment. |
| Other information | : Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product. |

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|---------------------------------------------|----------------------|
| Physical state | : Liquid |
| Colour | : No data available |
| Odour | : Little or no odour |
| Odour threshold | : No data available |
| pH | : No data available |
| Melting point | : No data available |
| Freezing point | : No data available |
| Boiling point | : No data available |
| Flash point | : No data available |
| Relative evaporation rate (butyl acetate=1) | : No data available |
| Flammability | : Not flammable |
| Vapour pressure | : No data available |
| Relative vapour density at 20°C | : No data available |
| Relative density | : No data available |
| Solubility | : No data available |
| Partition coefficient n-octanol/water | : No data available |
| Auto-ignition temperature | : No data available |
| Decomposition temperature | : No data available |

OMIC

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

| | |
|----------------------|---------------------|
| Viscosity, kinematic | : No data available |
| Viscosity, dynamic | : No data available |
| Explosive limits | : No data available |
| Explosive properties | : No data available |
| Oxidising properties | : No data available |

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reactions known under normal conditions of use.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Heat. Incompatible materials.

10.5. Incompatible materials

Strong acids. Strong oxidizers. Reducing agents.

10.6. Hazardous decomposition products

May include, and are not limited to: oxides of carbon.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

| | |
|-----------------------------|-------------------|
| Acute toxicity (oral) | : Not classified. |
| Acute toxicity (dermal) | : Not classified. |
| Acute toxicity (inhalation) | : Not classified. |

| Water (7732-18-5) | |
|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| LD50 oral rat | > 90 mL/kg |
| Sodium chloride (7647-14-5) | |
| LD50 oral rat | 3 g/kg |
| LD50 dermal rabbit | > 10000 mg/kg bodyweight Animal: rabbit |
| LC50 inhalation rat | > 42 mg/L (Exposure time: 1 h) |
| 4-(2-Hydroxyethyl)piperazine-1-ethanesulfonic acid sodium salt (75277-39-3) | |
| LD50 oral rat | > 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 423 (Acute Oral toxicity - Acute Toxic Class Method) |

OMIC

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

| Phosphoric acid, disodium salt (7558-79-4) | |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LD50 oral rat | 17 g/kg |
| LD50 dermal rat | > 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: EPA OPPTS 870.1200 (Acute Dermal Toxicity), Guideline: EU Method B.3 (Acute Toxicity (Dermal)), Remarks on results: other: |
| LC50 inhalation rat | > 0.83 mg/L air Animal: rat, Guideline: EPA OPP 81-3 (Acute inhalation toxicity), Guideline: other:, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity), Guideline: EU Method B.2 (Acute Toxicity (Inhalation)), Guideline: other: |

| Phosphoric acid, potassium salt (1:1) (7778-77-0) | |
|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LD50 oral rat | 3200 mg/kg |
| LD50 dermal rat | > 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: EPA OPPTS 870.1200 (Acute Dermal Toxicity), Guideline: EU Method B.3 (Acute Toxicity (Dermal)) |
| LC50 inhalation rat | > 0.83 mg/L air Animal: rat, Guideline: EPA OPP 81-3 (Acute inhalation toxicity), Guideline: other:U.S. Environmental Protection Agency Toxic Substances Health Effects Test Guidelines, October 1984 (PB82-232984) Acute Inhalation Toxicity Study, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity), Guideline: EU Method B.2 (Acute Toxicity (Inhalation)), Guideline: other:FMC Acute Inhalation Toxicity Protocol Number 27 |

| Potassium chloride (7447-40-7) | |
|---------------------------------------|------------|
| LD50 oral rat | 2600 mg/kg |

| | |
|-----------------------------------|--------------------------------------------------------------------|
| Skin corrosion/irritation | : Based on available data, the classification criteria are not met |
| Serious eye damage/irritation | : Based on available data, the classification criteria are not met |
| Respiratory or skin sensitisation | : Based on available data, the classification criteria are not met |
| Germ cell mutagenicity | : Based on available data, the classification criteria are not met |
| Carcinogenicity | : Based on available data, the classification criteria are not met |

| Potassium chloride (7447-40-7) | |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| NOAEL (chronic, oral, animal/male, 2 years) | ≈ 1820 mg/kg bodyweight Animal: rat, Animal sex: male, Remarks on results: other:Effect type: toxicity (migrated information) |
| Reproductive toxicity | : Based on available data, the classification criteria are not met. |
| STOT-single exposure | : Based on available data, the classification criteria are not met |
| STOT-repeated exposure | : Based on available data, the classification criteria are not met |

| Phosphoric acid, disodium salt (7558-79-4) | |
|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NOAEL (oral, rat, 90 days) | 1000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test) |

| Phosphoric acid, potassium salt (1:1) (7778-77-0) | |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NOAEL (oral, rat, 90 days) | 1000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test) |
| NOAEL (subchronic, oral, animal/male, 90 days) | 322.88 mg/kg bodyweight Animal: dog, Animal sex: male |
| NOAEL (subchronic, oral, animal/female, 90 days) | 492.77 mg/kg bodyweight Animal: dog, Animal sex: female |

OMIC

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

| PotassiumT chloride (7447-40-7) | |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| NOAEL (oral, rat, 90 days) | ≈ 1820 mg/kg bodyweight Animal: rat, Animal sex: male |
| Aspiration hazard | : Based on available data, the classification criteria are not met |
| Symptoms/effects after inhalation | : May cause irritation to the respiratory tract. |
| Symptoms/effects after skin contact | : May cause skin irritation. Repeated exposure may cause skin dryness or cracking. |
| Symptoms/effects after eye contact | : May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling. |
| Symptoms/effects after ingestion | : May be harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhea. |
| Other information | : Likely routes of exposure: ingestion, inhalation, skin and eye. |

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : May cause long-term adverse effects in the aquatic environment.

| Sodium chloride (7647-14-5) | |
|------------------------------------|---------------------------------------------------------------------------------------------|
| LC50 - Fish [1] | 5560 – 6080 mg/L (Exposure time: 96 h - Species: <i>Lepomis macrochirus</i> [flow-through]) |
| EC50 - Crustacea [1] | 1000 mg/L (Exposure time: 48 h - Species: <i>Daphnia magna</i>) |
| LC50 - Fish [2] | 12946 mg/L (Exposure time: 96 h - Species: <i>Lepomis macrochirus</i> [static]) |
| EC50 - Crustacea [2] | 340.7 – 469.2 mg/L (Exposure time: 48 h - Species: <i>Daphnia magna</i> [Static]) |
| LOEC (chronic) | 441 mg/L Test organisms (species): <i>Daphnia pulex</i> Duration: '21 d' |
| NOEC (chronic) | 314 mg/L Test organisms (species): <i>Daphnia pulex</i> Duration: '21 d' |

| 4-(2-Hydroxyethyl)piperazine-1-ethanesulfonic acid sodium salt (75277-39-3) | |
|------------------------------------------------------------------------------------|----------------------------------------------------------|
| EC50 - Crustacea [1] | > 0.1 g/L Test organisms (species): <i>Daphnia magna</i> |

| Phosphoric acid, disodium salt (7558-79-4) | |
|---------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| LC50 - Fish [1] | > 100 mg/L Test organisms (species): <i>Oncorhynchus mykiss</i> (previous name: <i>Salmo gairdneri</i>) |
| EC50 - Crustacea [1] | > 100 mg/L Test organisms (species): <i>Daphnia magna</i> |

| Phosphoric acid, potassium salt (1:1) (7778-77-0) | |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| LC50 - Fish [1] | > 100 mg/L Test organisms (species): <i>Oncorhynchus mykiss</i> (previous name: <i>Salmo gairdneri</i>) |
| EC50 - Crustacea [1] | > 100 mg/L Test organisms (species): <i>Daphnia magna</i> |

| Potassium chloride (7447-40-7) | |
|---------------------------------------|--------------------------------------------------------------------------------------|
| LC50 - Fish [1] | 1060 mg/L (Exposure time: 96 h - Species: <i>Lepomis macrochirus</i> [static]) |
| EC50 - Crustacea [1] | 825 mg/L (Exposure time: 48 h - Species: <i>Daphnia magna</i>) |
| EC50 - Other aquatic organisms [1] | 440 – 880 mg/L Test organisms (species): other:see below |
| LC50 - Fish [2] | 750 – 1020 mg/L (Exposure time: 96 h - Species: <i>Pimephales promelas</i> [static]) |
| EC50 - Crustacea [2] | 83 mg/L (Exposure time: 48 h - Species: <i>Daphnia magna</i> [Static]) |
| EC50 - Other aquatic organisms [2] | 580 – 670 mg/L Test organisms (species): other:see below |

12.2. Persistence and degradability

| OMIC | |
|-------------------------------|-----------------|
| Persistence and degradability | Not established |

OMIC

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

12.3. Bioaccumulative potential

| OMIC | |
|-----------------------------|----------------------|
| Bioaccumulative potential | Not established |
| Sodium chloride (7647-14-5) | |
| BCF - Fish [1] | (no bioaccumulation) |

12.4. Mobility in soil

| OMIC | |
|----------------|-------------------------------------|
| Ecology - soil | No additional information available |

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations : This material must be disposed of in accordance with all local, state, provincial, and federal regulations. The generation of waste should be avoided or minimized wherever possible.

SECTION 14: Transport information

Department of Transportation (DOT) and Transportation of Dangerous Goods (TDG)

In accordance with DOT/TDG

Not regulated for transport

Additional information

Other information : No supplementary information available.
Special transport precautions : Do not handle until all safety precautions have been read and understood.

SECTION 15: Regulatory information

15.1. Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory, except for:

| | | |
|----------------------------------------------------------------|----------------------|-------|
| Water | CAS-No. 7732-18-5 | 98.63 |
| Sodium chloride | CAS-No. 7647-14-5 | 0.80 |
| 4-(2-Hydroxyethyl)piperazine-1-ethanesulfonic acid sodium salt | CAS-No. 75277-39-3 | 0.30 |
| Phosphoric acid, disodium salt | CAS-No. 7558-79-4 | 0.15 |
| SARS-CoV-2 Omicron (BA.4/5) spike protein | CAS-No. Not assigned | 0.07 |
| Phosphoric acid, potassium salt (1:1) | CAS-No. 7778-77-0 | 0.024 |
| Potassium chloride | CAS-No. 7447-40-7 | 0.02 |

All components of this product are listed, or excluded from listing, on the Canadian DSL (Domestic Substances List) and NDSL (Non-Domestic Substances List) inventories except for:

| | | |
|-------------------------------------------|----------------------|------|
| SARS-CoV-2 Omicron (BA.4/5) spike protein | CAS-No. Not assigned | 0.07 |
|-------------------------------------------|----------------------|------|

OMIC

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

4-(2-Hydroxyethyl)piperazine-1-ethanesulfonic acid sodium salt (75277-39-3)

EPA TSCA Regulatory Flag

PMN - PMN - indicates a commenced PMN substance.

Phosphoric acid, disodium salt (7558-79-4)

CERCLA RQ

5000 lb

15.2 US State regulations

No additional information available

SECTION 16: Other information

| | |
|-------------------|--------------------------|
| Issue date | : 2022-12-07 |
| Revision date | : 2022-12-07 |
| Other information | : None. |
| Version # | : 1.0 |
| Prepared by | : Nexreg Compliance Inc. |

DISCLAIMER:

The information provided on 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.

This material is for research and experimental applications only. It is not intended for food, drug, household, agricultural, or cosmetic use. Its use must be supervised by technically qualified individuals with experience in the handling of potentially hazardous chemicals. Apart from the solvent in this product (if applicable), the hazardous components present in the solution are at such low concentrations that exact determination of degree of hazard is not warranted and would be misleading. We shall not be held liable for any damage resulting from handling or from contact with the above product.