



MATERIAL SAFETY DATA SHEET

SECTION 1 - PRODUCT AND COMPANY INFORMATION

- ◆ **Product name:** mRNA Spike SARS-CoV-2 (E484K; N501Y) (N¹mΨ)
- ◆ **Catalog number:** MRNA43
- ◆ **Chemical name or synonyms:**
- ◆ **Contact:**

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SECTION 2 – HAZARDS IDENTIFICATION

- ◆ **GHS Classification**
No
- ◆ **GHS Label element**

Signal Word:	None
Hazard Statements:	None
Pictograms:	None
- ◆ This product contains hazardous ingredients (Yes; No; Not Applicable or no information): **No.**
- ◆ This product contains hazardous carcinogens (Yes; No; N/A): **No**
- ◆ This product contains hazardous ingredients to the environment. (Yes; No; N/A): **No**

SECTION 3 – COMPOSITION, INFORMATION ON INGREDIENTS

Description: N¹-methyl-pseudouridine (N1mΨ) modified Spike SARS-CoV-2 (with E484K; N501Y mutations) mRNA dissolved in citrate buffer 1mM

<u>Ingredient name</u>	<u>CAS number</u>
mRNA	NA
citric acid	77-92-9

Ingredients are not hazardous or their concentrations do not exceed the limit specified according to 29 CFR 1910.1200 Hazard Communication Standard (USA) and Directive 1999/45/EC-2001/59/EC (EU).

SECTION 4 – FIRST AID MEASURES

- ◆ **Effects and symptoms:**

○ <i>Inhalation</i>	May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
○ <i>Ingestion</i>	May be harmful in case of ingestion.
○ <i>Skin contact</i>	May cause skin irritation, redness, itching.
○ <i>Eye contact</i>	Slightly hazardous in case of eye contact.
○ <i>Aggravating conditions</i>	Chronic exposure may develop allergic reactions in sensitive individuals.
- ◆ **First-Aid measures:**

○ <i>Inhalation</i>	If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
○ <i>Ingestion</i>	If swallowed, wash out mouth with water provided person is conscious. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
○ <i>Skin contact</i>	In case of contact, immediately wash skin with soap and copious amounts of water.
○ <i>Eye contact</i>	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

- Notes to physician Not available.
- Protection of first-aiders Not available.

SECTION 5 – FIRE FIGHTING MEASURES

- ◆ **Extinguishing media:** Water spray, carbon dioxide, dry chemical powder or appropriate foam.
- ◆ **Flammability of the product:** Not available.
- ◆ **Flash Point:** Not available.
- ◆ **Fire hazards in presence of various substances:** Not considered to be flammable.
- ◆ **Fire fighting media and instructions:** Use an extinguish agent suitable for surrounding fires.
- ◆ **Protective clothing (fire):** Be sure to use an approved/certified respirator or equivalent.
- ◆ **Hazardous thermal decomposition products:** Not available.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

- ◆ **Personal precautions:** Safety glasses, lab coat and gloves.
- ◆ **Environmental precautions and clean-up methods:** Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow evacuating through the sanitary system.
- ◆ **Small spill and leak:** Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
- ◆ **Additional information:** No dangerous substances are released.

SECTION 7 – HANDLING AND STORAGE

- ◆ **Handling:** Avoid contact with skin, eyes and clothing. Avoid prolonged or repeated exposure.
- ◆ **Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area. Store at - 80°C for long-term storage.
- ◆ **Intended use:** Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific application.
- ◆ **Packaging materials**
 - ◆ **Suitable:** Use original container.

SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION

- ◆ **Engineering Controls:** Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. Ensure that eyewash stations and safety showers are proximal to the work-station location.
- ◆ **Personal protection**
 - **Eyes:** Safety glasses.
 - **Body:** Lab coat and gloves.
 - **Respiratory:** Respirator is not needed under normal and intended conditions of use, if exposures are kept below established limits.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

- ◆ **Appearance**
 - **Physical State:** Liquid
 - **Color:** Colorless
 - **Odor:** Not available.
 - **Taste:** Not available.
- ◆ **Molecular weight:** Not available.
- ◆ **pH:** 6.4
- ◆ **Boiling point:** 100°C
- ◆ **Decomposition temperature:** Not available
- ◆ **Melting point:** Not available.
- ◆ **Flash point:** Not available.
- ◆ **Dispersion properties:** Not applicable.
- ◆ **Solubility:** Readily soluble in water.

SECTION 10 – STABILITY AND REACTIVITY

- ◆ **Stability and reactivity:** The product is stable under recommended storage conditions.
- ◆ **Conditions to avoid:** Exposure to light, air or moisture over prolonged periods.
- ◆ **Materials to avoid:** Strong acids, strong bases, strong oxidizing agents.
- ◆ **Hazardous polymerization:** Will not occur.
- ◆ **Hazardous decomposition products:** Will not occur.

SECTION 11 – TOXICOLOGICAL INFORMATION

- ◆ **Route of exposure:**
 - **Skin absorption:** may be harmful if absorbed through the skin.
 - **Skin contact:** May cause skin irritation.
 - **Eye contact:** May cause eye irritation.
 - **Inhalation:** May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
 - **Ingestion:** May be harmful if swallowed.
- ◆ **Toxicity on animals:**
 - **LD50:** Not available.
 - **LC50:** Not available.
- ◆ **Chronic effects on humans:** Carcinogenic effects: classified none. by NIOSH. By OSHA.
- ◆ **Other toxic effects on humans:** None.

SECTION 12 – ECOLOGICAL INFORMATION

- ◆ No data available.

SECTION 13 – DISPOSAL CONSIDERATIONS

- ◆ **Waste stream:** Not available.
- ◆ **Waste disposal method:** Contact a licensed professional waste disposal service to dispose of this material. Dispose in accordance with governmental environmental regulations. Observe all federal, state, and local environmental regulations.
- ◆ **European waste catalogue (EWC):** Not available.
- ◆ **Hazardous waste:** Will not occur.

SECTION 14 – TRANSPORT INFORMATION

Note Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

D.O.T.: Not regulated.

IATA.: Not regulated.

IMDG: Not regulated.

SECTION 15 – OTHER INFORMATION

◆ **US Federal Regulations**

RCRA (Lists of Hazardous Wastes, 40 CFR 261 Subpart D): Not applicable

CLEAN AIR ACT (SEC. 112. Hazardous Air Pollutants): Not applicable

CLEAN WATER ACT (RQ, 40 CFR): Not applicable

SARA Title III:

Section 302 -304, 40 CFR 355: Components present in this product at a level which could require reporting are: none.

Section 311 - 312: Components present in this product at a level which could require reporting are: none.

Section 313: Not applicable

TSCA Section 8(b) Inventory Status: All ingredients are listed on TSCA Inventory of Chemical Substances or exempt from TSCA Inventory requirements.

AICS Inventory Status: All ingredients are listed on the Australia Inventory of Chemical Substances.

State Lists

This product does not contain any Proposition 65 chemicals.

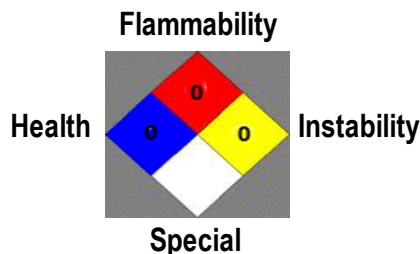
- ◆ This product is not classified according to the EU regulations.

SECTION 16– OTHER INFORMATION

◆ Hazardous Material Information System (U.S.A.):

Health	0
Fire hazard	0
Reactivity	0
Personal protection	

◆ National Fire Protection Association (U.S.A.):



0 = not significant
1 = slight
2 = moderate

3 = high
4 = extreme
* = chronic

◆ Revisions:

Issue Date: 10-Nov-2022
Last Revision Date: 25/01/2023
Revision note: Format update

◆ Other Comments:

To the best of our knowledge, the information contain herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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