# K-Blue® Advanced TMB Substrate

Safety Data Sheet

according to the Hazardous Products Regulation (WHMIS 2015)
Issue date: 06-26-2025 Revision date: 08-29-2025 Supersedes: 06-26-2025 Version: 2.0

## SECTION 1 Identification

### 1.1. GHS Product identifier

| | |
|---|---|
| Product form | : Mixture |
| Trade name | : K-Blue® Advanced TMB Substrate |
| Type of product | : Life Sciences -- [Life Sciences] |
| Product code | : 21266 |

### 1.2. Other means of identification

Part Number(s) : 21266|27090|319175|319176|319177|319257|319251|319207|319206|319212|319170-W|319171|319174-W|319189|319191|319199|319202|319210-L

### 1.3. Recommended use of the chemical and restrictions on use

| | |
|---|---|
| Use of the substance/mixture | : Laboratory chemicals,Scientific research and development |
| Restrictions on use | : Do not use kit components from one kit with any other kit. |

### 1.4. Supplier's details

**Manufacturer**
Neogen Corporation
620 Lesher Place
Lansing, Michigan 48912
United States of America
T 800.234.5333
sds@neogen.com - https://www.neogen.com/

### 1.5. Emergency phone number

Emergency number : 24 hours:
Medical: 1-800-498-5743 (U.S. and Canada) or 1-651-523-0318 (international)
Spill/CHEMTREC: 1-800-424-9300 (U.S. and Canada) or 1-703-527-3887 (international)

## SECTION 2 Hazard identification

### 2.1. Classification of the substance or mixture

#### Classification (GHS CA)

| | | |
|---|---|---|
| Reproductive toxicity, Category 1B | H360 | May damage fertility or the unborn child. |

Full text of H statements : see section 16

### 2.2. GHS label elements, including precautionary statements

#### GHS CA labeling

Hazard pictograms (GHS CA) :

Signal word (GHS CA) : Danger

Hazard statements (GHS CA) : H360 - May damage fertility or the unborn child

Precautionary statements (GHS CA) : P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P280 - Wear protective gloves, protective clothing, eye protection, face protection, and hearing protection.

P308+P313 - IF exposed or concerned: Get medical advice or attention.
P405 - Store locked up.
P501 - Dispose of contents and/or container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulations.

### 2.3. Other hazards which do not result in classification

No additional information available

## SECTION 3 Composition/information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

| Name | Chemical name / Synonyms | Product identifier | % | Classification (GHS CA) |
|---|---|---|---|---|
| 2-Pyrrolidinone | 2-Pyrrolidinone 2-ketopyrrolidine / 2-ketopyrrolidone / 2-oxopyrrolidine / 2-pyrol / 2-pyrrolidinone / 2-pyrrolidon usp / 2-pyrrolidone / 4-aminobutyric acid lactam / alpha-pyrrolidinone / alpha-pyrrolidone / butanoic acid, 4-amino-, lactam / butyrolactam(=2-pyrrolidone) / gamma-aminobutyric acid lactam / gamma-aminobutyric lactam / gamma-aminobutyrolactam / gamma-butyrolactam / lam / pyrrolidon dest. / pyrrolidone | CAS-No.: 616-45-5 | ≥ 5 – < 10 | Eye Irrit. 2, H319<br>Repr. 1B, H360 |

Full text of hazard classes and H-statements : see section 16

## SECTION 4 First-aid measures

### 4.1. Description of necessary first-aid measures

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact : Wash skin with plenty of water.
First-aid measures after eye contact : Rinse eyes with water as a precaution.
First-aid measures after ingestion : Call a poison center/doctor/physician if you feel unwell.

First-aid measures general : IF exposed or concerned: Get medical advice/attention.

Personal protection for first-aid responders. : First aid workers will be equipped with suitable personal protective equipment.

### 4.2. Most important symptoms/effects, acute and delayed

Symptoms/effects after inhalation : None under normal conditions.

Symptoms/effects after skin contact : None under normal conditions.

Symptoms/effects after eye contact : None under normal conditions.

Symptoms/effects after ingestion : None under normal conditions.

Chronic symptoms : May damage fertility or the unborn child.

### 4.3. Indication of immediate medical attention and special treatment needed, if necessary

Other medical advice or treatment : Treat symptomatically.

## SECTION 5 Fire-fighting measures

### 5.1. Suitable extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

Unsuitable extinguishing media : Do not use a heavy water stream.

### 5.2. Specific hazards arising from the chemical

Fire hazard : No fire hazard.

Explosion hazard : No direct explosion hazard.

Hazardous decomposition products in case of fire : Toxic fumes may be released.

### 5.3. Special protective actions for fire-fighters

Firefighting instructions : Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection.

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

## SECTION 6 Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

General measures : Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material-damage.

Environmental precautions : Avoid release to the environment. Notify authorities if product enters sewers or public waters.

### 6.2. Methods and materials for containment and cleaning up

For containment : Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak, if possible without risk.

Methods for cleaning up : Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.

Other information : Dispose of materials or solid residues at an authorized site.

For further information refer to section 13.

## SECTION 7 Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear personal protective equipment.

Hygiene measures : Separate working clothes from town clothes. Launder separately. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

### 7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Keep in a cool, well-ventilated place away from heat.
Storage conditions : Store locked up.
Packaging materials : Store always product in container of same material as original container.

## SECTION 8 Exposure controls/personal protection

### 8.1. Control parameters

No additional information available

### 8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

### 8.3. Individual protection measures, such as personal protective equipment (PPE)

**Personal protective equipment:**
Wear recommended personal protective equipment.

| **Hand protection:** |
|---|
| Protective gloves |

| **Eye protection:** |
|---|
| Safety glasses |

| **Skin and body protection:** |
|---|
| Wear suitable protective clothing |

| **Respiratory protection:** |
|---|
| [In case of inadequate ventilation] wear respiratory protection. |

**Personal protective equipment symbol(s):**

## SECTION 9 Physical and chemical properties

### 9.1. Basic physical and chemical properties

Physical state : Liquid
Appearance : No data available
Color : Clear light blue
Odor : Characteristic
Odor threshold : No data available
pH : 3.1 – 3.5

| | | |
|---|---|---|
| Relative evaporation rate (butyl acetate=1) | : | No data available |
| Relative evaporation rate (ether=1) | : | No data available |
| Melting point | : | Not applicable |
| Freezing point | : | No data available |
| Boiling point | : | No data available |
| Flash point | : | No data available |
| Auto-ignition temperature | : | No data available |
| Decomposition temperature | : | No data available |
| Flammability (solid, gas) | : | Not applicable |
| Vapor pressure | : | No data available |
| Relative vapor density at 20°C | : | No data available |
| Relative density | : | No data available |
| Solubility | : | Soluble in water. |
| Partition coefficient n-octanol/water (Log Pow) | : | No data available |
| Viscosity, kinematic | : | No data available |
| Explosion limits | : | No data available |
| Particle characteristics | : | No data available |

### 9.2. Data relevant with regard to physical hazard classes (supplemental)

No additional information available

## SECTION 10 Stability and reactivity

| | | |
|---|---|---|
| Reactivity | : | The product is non-reactive under normal conditions of use, storage and transport. |
| Chemical stability | : | Stable under normal conditions. |
| Possibility of hazardous reactions | : | No dangerous reactions known under normal conditions of use. |
| Conditions to avoid | : | None under recommended storage and handling conditions (see section 7). |
| Incompatible materials | : | No additional information available |
| Hazardous decomposition products | : | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |
| Hardening time: | : | No additional information available |

## SECTION 11 Toxicological information

### 11.1. Likely routes of exposure

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

| K-Blue® Advanced TMB Substrate | |
|---|---|
| Unknown acute toxicity (GHS CA) | 5.6% of the mixture consists of ingredient(s) of unknown acute toxicity (Oral)<br>5.6% of the mixture consists of ingredient(s) of unknown acute toxicity (Dermal)<br>5.6% of the mixture consists of ingredient(s) of unknown acute toxicity (Inhalation (Dust/Mist)) |

| 2-Pyrrolidinone (616-45-5) | |
|---|---|
| LD50 oral rat | > 2000 mg/kg body weight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity), Guideline: EU Method B.1 (Acute Toxicity (Oral)) |
| LD50 dermal rabbit | > 2000 mg/kg body weight Animal: rabbit, Guideline: OECD Guideline 402 (Acute Dermal Toxicity) |

| | | |
|---|---|---|
| Skin corrosion/irritation | : | Not classified.<br>pH: 3.1 – 3.5 |

| 2-Pyrrolidinone (616-45-5) | |
|---|---|
| pH | 8 – 9 (10 %) |

Serious eye damage/irritation : Not classified
pH: 3.1 – 3.5

| 2-Pyrrolidinone (616-45-5) | |
|---|---|
| pH | 8 – 9 (10 %) |

Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : May damage fertility or the unborn child.
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified

| 2-Pyrrolidinone (616-45-5) | |
|---|---|
| NOAEL (oral,rat,90 days) | 207 mg/kg body weight Animal: rat, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents), Guideline: EU Method B.26 (Sub-Chronic Oral Toxicity Test: Repeated Dose 90-Day Oral Toxicity Study in Rodents) |

Aspiration hazard : Not classified

| 2-Pyrrolidinone (616-45-5) | |
|---|---|
| Viscosity, kinematic | 9.009 mm²/s |

Symptoms/effects after inhalation : None under normal conditions.
Symptoms/effects after skin contact : None under normal conditions.
Symptoms/effects after eye contact : None under normal conditions.
Symptoms/effects after ingestion : None under normal conditions.
Chronic symptoms : May damage fertility or the unborn child.

## SECTION 12 Ecological information

### 12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short–term (acute) : Not classified.
Hazardous to the aquatic environment, long–term (chronic) : Not classified.

| 2-Pyrrolidinone (616-45-5) | |
|---|---|
| LC50 - Fish [1] | 4600 – 10000 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Danio rerio, Static system, Fresh water, Experimental value) |
| EC50 - Crustacea [1] | > 500 mg/l (48 h, Daphnia magna, Static system, Fresh water, Experimental value) |
| ErC50 algae | > 500 mg/l (DIN 38412-9, 72 h, Desmodesmus subspicatus, Static system, Fresh water, Experimental value) |
| EC50 72h - Algae [1] | > 500 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus) |

### 12.2. Persistence and degradability

| K-Blue® Advanced TMB Substrate | |
|---|---|
| Persistence and degradability | Not rapidly degradable |

| 2-Pyrrolidinone (616-45-5) | |
|---|---|
| Persistence and degradability | Readily biodegradable in water. |

| 2-Pyrrolidinone (616-45-5) | |
|---|---|
| Biochemical oxygen demand (BOD) | 1.16 g $O_2$/g substance |
| Chemical oxygen demand (COD) | 1.69 g $O_2$/g substance |
| ThOD | 2.44 g $O_2$/g substance |

### 12.3. Bioaccumulative potential

| 2-Pyrrolidinone (616-45-5) | |
|---|---|
| Bioaccumulative potential | Low potential for bioaccumulation (BCF < 500). |
| BCF - Fish [1] | 3.16 l/kg (BCFBAF v3.00, Fresh water, Calculated value) |
| Partition coefficient n-octanol/water (Log Pow) | -0.71 (Practical experience/observation, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 25 °C) |

### 12.4. Mobility in soil

| 2-Pyrrolidinone (616-45-5) | |
|---|---|
| Mobility in soil | 17 Source: National Library of Medicine/Hazardous Substances Data Bank |
| Ecology - soil | Highly mobile in soil. |
| Organic Carbon Normalized Adsorption Coefficient (Log Koc) | 0.868 (log Koc, Calculated value) |

### 12.5. Other adverse effects

Ozone : Not classified

Fluorinated greenhouse gases : No

## SECTION 13 Disposal considerations

Regional waste regulation : Disposal must be done according to official regulations.
Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations : Disposal must be done according to official regulations.
Product/Packaging disposal recommendations : Disposal must be done according to official regulations.
Additional information : Do not re-use empty containers.

## SECTION 14 Transport information

In accordance with TDG / DOT / IMDG / IATA

| TDG | DOT | IMDG | IATA |
|---|---|---|---|
| **14.1. UN Number** | | | |
| Not regulated for transport | | | |
| **14.2. UN Proper Shipping Name** | | | |
| Not regulated | Not regulated | Not regulated | Not regulated |
| **14.3. Transport hazard class(es)** | | | |
| Not regulated | Not regulated | Not regulated | Not regulated |
| **14.4. Packing group, if applicable** | | | |
| Not regulated | Not regulated | Not regulated | Not regulated |

| TDG | DOT | IMDG | IATA |
|---|---|---|---|
| **14.5. Environmental hazards** | | | |
| Not regulated | Not regulated | Not regulated | Not regulated |
| No supplementary information available | | | |

## 14.6. Special precautions for user

**TDG**
Not regulated

**DOT**
Not regulated

**IMDG**
Not regulated

**IATA**
Not regulated

## 14.7. Transport in bulk according to Annex II of MARPOL 73/78[9] and the IBC Code[10]

Not applicable

## SECTION 15 Regulatory information

**2-Pyrrolidinone (616-45-5)**

**Listed on the Canadian DSL (Domestic Substances List)**

**2-Pyrrolidinone (616-45-5)**

**Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active**
**Listed on INSQ (Mexican National Inventory of Chemical Substances)**

## SECTION 16 Other Information

Issue date : 06-26-2025
Revision date : 08-29-2025
Supersedes : 06-26-2025

| Full text of hazard classes and H-statements: | |
|---|---|
| H319 | Causes serious eye irritation |
| H360 | May damage fertility or the unborn child |

Safety Data Sheet (SDS), Canada

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.