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

1.1. Product identifier

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product form</td>
<td>Mixture</td>
</tr>
<tr>
<td>Product name</td>
<td>KLH (Keyhole Limpet Hemocyanin) base</td>
</tr>
<tr>
<td>Product code</td>
<td>T-5060, N-5060, N-5042, D-5060, T-5061</td>
</tr>
<tr>
<td>Product group</td>
<td>Trade product</td>
</tr>
<tr>
<td>Other means of identification</td>
<td>TNP-KLH (Keyhole Limpet Hemocyanin); NP-KLH (Keyhole Limpet Hemocyanin); NIP-KLH (Keyhole Limpet Hemocyanin); DNP-KLH (Keyhole Limpet Hemocyanin); TNP-KLH-Biotin</td>
</tr>
</tbody>
</table>

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

1.2.1. Relevant identified uses

No additional information available

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

US Address:
Biosearch Technologies, Inc
2199 South McDowell Boulevard
Petaluma, CA 94954-6904
USA

EU Address:
Unit 1-2 Trident Industrial Estate
Pindar Road
Hoddesdon, EN110WZ
England

1.4. Emergency telephone number

Emergency number: 1-888-575-9695 (Monday-Friday, 8:00AM-5:00PM)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not classified

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

No labelling applicable

2.3. Other hazards

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0.1%
SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Contains no hazardous ingredients at levels requiring disclosure by Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878</td>
</tr>
</tbody>
</table>

SECTION 4: First Aid measures

4.1. Description of first aid measures

First-aid measures general: If exposed or concerned, get medical attention/advice. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use. Never give anything to an unconscious person.

First-aid measures after inhalation: IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if breathing is affected. If breathing is difficult, supply oxygen.

First-aid measures after skin contact: IF ON SKIN (or clothing): Remove affected clothing and wash all exposed skin with water for at least 15 minutes. If irritation develops or persists, get medical attention immediately.

First-aid measures after eye contact: IF IN EYES: Immediately flush with plenty of water for at least 15 minutes. Remove contact lenses if present and easy to do so. Get medical attention immediately. Continue rinsing.

First-aid measures after ingestion: IF SWALLOWED: rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. Get medical attention if you feel unwell.

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

Symptoms/effects: Not expected to present a significant hazard under anticipated conditions of normal use.

Symptoms/effects after inhalation: May cause respiratory irritation.

Symptoms/effects after skin contact: May cause skin irritation.

Symptoms/effects after eye contact: Direct contact with eyes is likely to be irritating.

Symptoms/effects after ingestion: May cause gastrointestinal irritation.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: Foam. Dry powder. Carbon dioxide (CO2).

Unsuitable extinguishing media: Water spray.

5.2. Special hazards arising from the substance or mixture

Fire hazard: Not flammable.

Explosion hazard: Product is not explosive.

Reactivity in case of fire: None known.
5.3. Advice for firefighters

Precautionary measures fire exposure: Eliminate all ignition sources if safe to do so.
Firefighting instructions: Exercise caution when fighting any chemical fire. Use water spray or fog for cooling exposed containers. Do not dispose of fire-fighting water in the environment.
Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. Self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Evacuate area. Ventilate area. Keep upwind. Spill should be handled by trained cleaning personnel properly equipped with respiratory and eye protection.

6.1.1. For non-emergency personnel

Protective equipment: Wear Protective equipment as described in Section 8.
Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment: Wear suitable protective clothing, gloves and eye or face protection. Approved supplied-air respirator, in case of emergency.

6.2. Environmental precautions

Avoid release to the environment. Prevent entry to sewers and public waters.

6.3. Methods and material for containment and cleaning up

For containment: Contain solid spills with appropriate barriers and prevent migration and entry into sewers or streams. Minimise generation of dust.
Methods for cleaning up: Scoop solid spill into closing conductive containers or conductive bags. This material and its container must be disposed of in a safe way, and as per local legislation.

6.4. Reference to other sections

See Sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Do not handle until all safety precautions have been read and understood. Keep container closed when not in use. Do not breathe dust. Avoid contact with skin and eyes. Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in original container. Keep container closed when not in use. Containers which are opened should be properly resealed and kept upright to prevent leakage. Store in a dry, cool and well-ventilated place.

7.3. Specific end use(s)

No additional information available.
SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1. National occupational exposure and biological limit values
No additional information available

8.1.2. Recommended monitoring procedures
No additional information available

8.1.3. Air contaminants formed
No additional information available

8.1.4. DNEL and PNEC
No additional information available

8.1.5. Control banding
No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls
Appropriate engineering controls:
Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Ensure adequate ventilation, especially in confined areas.

8.2.2. Personal protection equipment
Personal protective equipment:
Gloves. Protective goggles. Wear labcoat with full coverage clothing. [In case of inadequate ventilation] wear respiratory protection.

Personal protective equipment symbol(s):

8.2.2.1. Eye and face protection
Eye protection:
Use eye protection suitable to the environment. Avoid direct contact with eyes. Eye protection should be classified under EN 167(EU)

8.2.2.2. Skin protection
Skin and body protection:
Wear long sleeves, and chemically impervious PPE/coveralls to minimize bodily exposure. [EN 14605:2005 and EN 13034:2005]

Hand protection:
Use gloves chemically resistant to this material when prolonged or repeated contact could occur. Gloves should be classified under Standard EN 374 or ASTM F1296. Suggested glove materials are: Neoprene, Nitrile/butadiene rubber, Polyethylene, Ethyl vinyl alcohol laminate, PVC or vinyl. Suitable gloves for this specific application can be recommended by the glove supplier.

8.2.2.3. Respiratory protection
Respiratory protection:
Where vapour, mist, or dust exceed PELs or other applicable OELs, use the European Standard EN 529:2005 approved dust/particulate respiratory protective equipment.

8.2.2.4. Thermal hazards
No additional information available

8.2.3. Environmental exposure controls
No additional information available
SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Solid
Colour : Not applicable
Odour : Not applicable
Odour threshold : Not applicable
Melting point : Not applicable
Freezing point : Not applicable
Boiling point : Not applicable
Flammability : Not applicable
Explosive limits : Not applicable
Lower explosive limit (LEL) : Not applicable
Upper explosive limit (UEL) : Not applicable
Flash point : Not applicable
Auto-ignition temperature : Not applicable
Decomposition temperature : Not applicable
pH : Not applicable
pH solution : Not applicable
Viscosity, kinematic : Not applicable
Solubility : Not applicable
Partition coefficient n-octanol/water (Log Kow) : Not applicable
Vapour pressure : Not applicable
Vapour pressure at 50 °C : Not applicable
Density : Not applicable
Relative density : Not applicable
Relative vapour density at 20 °C : Not applicable
Particle size : Not applicable
Particle size distribution : Not applicable
Particle shape : Not applicable
Particle aspect ratio : Not applicable
Particle aggregation state : Not applicable
Particle agglomeration state : Not applicable
Particle specific surface area : Not applicable
Particle dustiness : Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes
No additional information available

9.2.2. Other safety characteristics
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 recommended handling and storage conditions (see section 7).

10.3. Possibility of hazardous reactions
None under normal use.
10.4. Conditions to avoid

None known.

10.5. Incompatible materials

None known.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity (oral)</td>
<td>Not classified</td>
</tr>
<tr>
<td>Acute toxicity (dermal)</td>
<td>Not classified</td>
</tr>
<tr>
<td>Acute toxicity (inhalation)</td>
<td>Not classified</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Not classified</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Not classified</td>
</tr>
<tr>
<td>Respiratory or skin sensitisation</td>
<td>Not classified</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>STOT-single exposure</td>
<td>Not classified</td>
</tr>
<tr>
<td>STOT-repeated exposure</td>
<td>Not classified</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Adverse health effects caused by endocrine disrupting properties: The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0.1 %

11.2.2. Other information

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecology - general</td>
<td>No data available.</td>
</tr>
<tr>
<td>Hazardous to the aquatic environment, short-term (acute)</td>
<td>Not classified</td>
</tr>
<tr>
<td>Hazardous to the aquatic environment, long-term (chronic)</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available
KLH (Keyhole Limpet Hemocyanin) base
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

12.4. Mobility in soil
No additional information available

12.5. Results of PBT and vPvB assessment
No additional information available

12.6. Endocrine disrupting properties
Adverse effects on the environment caused by endocrine disrupting properties: The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0.1%

12.7. Other adverse effects
Other adverse effects: No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Waste treatment methods: Do not discharge to public wastewater systems without permit of pollution control authorities. No discharge to surface waters is allowed without a permit.
Product/Packaging disposal recommendations: Dispose in a safe manner in accordance with local/national regulations. Do not allow the product to be released into the environment.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

14.1. UN number or ID number
UN-No. (ADR) : Not regulated
UN-No. (IMDG) : Not regulated
UN-No. (IATA) : Not regulated
UN-No. (ADN) : Not regulated
UN-No. (RID) : Not regulated

14.2. UN proper shipping name
Proper Shipping Name (ADR) : Not regulated
Proper Shipping Name (IMDG) : Not regulated
Proper Shipping Name (IATA) : Not regulated
Proper Shipping Name (ADN) : Not regulated
Proper Shipping Name (RID) : Not regulated

14.3. Transport hazard class(es)
ADR
Transport hazard class(es) (ADR) : Not regulated

IMDG
Transport hazard class(es) (IMDG) : Not regulated

IATA
Transport hazard class(es) (IATA) : Not regulated
KLH (Keyhole Limpet Hemocyanin) base
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

ADN
Transport hazard class(es) (ADN) : Not regulated

RID
Transport hazard class(es) (RID) : Not regulated

14.4. Packing group
Packing group (ADR) : Not regulated
Packing group (IMDG) : Not regulated
Packing group (IATA) : Not regulated
Packing group (ADN) : Not regulated
Packing group (RID) : Not regulated

14.5. Environmental hazards
Dangerous for the environment : No
Marine pollutant : No
Other information : No supplementary information available

14.6. Special precautions for user
Overland transport
Not regulated

Transport by sea (IMDG)
Not regulated

Air transport (IATA)
Not regulated

Inland waterway transport
Not regulated

Rail transport
Not regulated

14.7. Maritime transport in bulk according to IMO instruments
Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations
Contains no REACH substances with Annex XVII restrictions
Contains no substance on the REACH candidate list
Contains no REACH Annex XIV substances
KLH (Keyhole Limpet Hemocyanin) base
Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

15.1.2. National regulations

LGC claims research and development (R&D) exemption status under the Toxic Substances Control Act (TSCA) for this product. It may contain ingredients that are not on the TSCA inventory and only be used exclusively for research and development activities in accordance with the R&D exemption requirements under TSCA found at 40 CFR 720.36. It is the end-user’s responsibility to understand and follow these requirements.

Germany
Water hazard class (WGK) : WGK nwg, Non-hazardous to water (Classification according to AwSV, Annex 1)
Hazardous Incident Ordinance (12. BImSchV) : Is not subject of the Hazardous Incident Ordinance (12. BImSchV)

Netherlands
SZW-lijst van kankerverwekkende stoffen : None of the components are listed
SZW-lijst van mutagene stoffen : None of the components are listed
SZW-lijst van reprotoxische stoffen – Borstvoeding : None of the components are listed
SZW-lijst van reprotoxische stoffen – Vruchtbaarheid : None of the components are listed

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Abbreviations and acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>American Conference of Governmental Industrial Hygienists</td>
</tr>
<tr>
<td>ADN</td>
<td>European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways</td>
</tr>
<tr>
<td>ADR</td>
<td>European Agreement concerning the International Carriage of Dangerous Goods by Road</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>Chemical Abstract Service number</td>
</tr>
<tr>
<td>CLP</td>
<td>Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008</td>
</tr>
<tr>
<td>DNEL</td>
<td>Derived-No Effect Level</td>
</tr>
<tr>
<td>EC50</td>
<td>Median effective concentration</td>
</tr>
<tr>
<td>EC-No.</td>
<td>European Community number</td>
</tr>
<tr>
<td>ED</td>
<td>Endocrine disrupting properties</td>
</tr>
<tr>
<td>EN</td>
<td>European Standard</td>
</tr>
<tr>
<td>IATA</td>
<td>International Air Transport Association</td>
</tr>
<tr>
<td>IMDG</td>
<td>International Maritime Dangerous Goods</td>
</tr>
<tr>
<td>LD50</td>
<td>Median lethal dose</td>
</tr>
<tr>
<td>OEL</td>
<td>Occupational Exposure Limit</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety and Health Administration</td>
</tr>
<tr>
<td>PBT</td>
<td>Persistent Bioaccumulative Toxic</td>
</tr>
<tr>
<td>PNEC</td>
<td>Predicted No-Effect Concentration</td>
</tr>
<tr>
<td>RID</td>
<td>Regulations concerning the International Carriage of Dangerous Goods by Rail</td>
</tr>
<tr>
<td>SDS</td>
<td>Safety Data Sheet</td>
</tr>
<tr>
<td>STOT</td>
<td>Specific target organ toxicity</td>
</tr>
<tr>
<td>TRGS</td>
<td>Technical Rules for Hazardous Substances</td>
</tr>
</tbody>
</table>
KLH (Keyhole Limpet Hemocyanin) base
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Abbreviations and acronyms

<table>
<thead>
<tr>
<th>vPvB</th>
<th>Very Persistent and Very Bioaccumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>WGK</td>
<td>Water Hazard Class</td>
</tr>
</tbody>
</table>

Data sources:
Globally Harmonized System of Classification and Labelling of Chemicals (GHS).
Classification for the USA in accordance with 29 CFR 1910.1200 (2012).
ECHA (European Chemicals Agency).

Training advice:
Normal use of this product shall imply use in accordance with the instructions for use and corresponding product packaging.

Indication of changes:
Revision 1.0: New SDS Created

Other information:
Author: JAD.

SDS Prepared for LGC by:
Pace Analytical Services, Inc.
Product Regulatory Services Group
1800 Elm Street
Minneapolis, MN 55414
United States
612-656-1175
paceSDS@pacelabs.com

Classification according to Regulation (EC) No. 1272/2008
Not classified

Classification procedure
Specific concentration limit

LGC EU SDS
This information is disclosed to the best of LGC’s knowledge. Disposal should be in accordance with applicable regional, national and local laws and regulations.