SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier: Universal Beer Agar U21-100

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

Relevant uses:

Uses advised against: All uses not specified in this section or in section 7.3

1.3 Details of the supplier of the safety data sheet:

Alpha Biosciences, Inc.
3651 Clipper Mill Road
21211 Baltimore - Maryland - USA
Phone.: 410.467.9983 - Fax: 410.467.5088
www.alphabiosciences.com

1.4 Emergency telephone number:

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

CLP Regulation (EC) nº 1272/2008:

Classification of this product has been carried out in accordance with CLP Regulation (EC) nº 1272/2008.

Acute Tox. 4: Acute toxicity if swallowed, Category 4, H302
Eye Irrit. 2: Eye irritation, Category 2, H319
Skin Irrit. 2: Skin irritation, Category 2, H315

2.2 Label elements:

CLP Regulation (EC) nº 1272/2008:

P101: If medical advice is needed, have product container or label at hand
P102: Keep out of reach of children
P264: Wash thoroughly after use
P270: Do no eat, drink or smoke when using this product
P302+P352: IF ON SKIN: Wash with plenty of water
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P330: Rinse mouth
P337+P313: If eye irritation persists: Get medical advice/attention
P501: Dispose of the contents/containers in accordance with the current legislation on waste treatment

Hazard statements:

Acute Tox. 4: H302 - Harmful if swallowed
Eye Irrit. 2: H319 - Causes serious eye irritation
Skin Irrit. 2: H315 - Causes skin irritation

Precautionary statements:

Substances that contribute to the classification

Ferrous sulfate heptahydrate

2.3 Other hazards:

Non-applicable

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance:

Non-applicable
SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS (continue)

3.2 Mixture:

Chemical description:

Components:

In accordance with Annex II of Regulation (EC) nº1907/2006 (point 3), the product contains:

<table>
<thead>
<tr>
<th>Identification</th>
<th>Chemical name/Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS: 7782-63-0</td>
<td>Ferrous sulfate heptahydrate</td>
<td>10 - &lt;25 %</td>
</tr>
<tr>
<td>EINECS: 231-753-5</td>
<td>Self-classified</td>
<td></td>
</tr>
<tr>
<td>Index: Non-applicable</td>
<td>Regulation 1272/2008</td>
<td></td>
</tr>
<tr>
<td>REACH: 01-219551203-57-XXXX</td>
<td>Acute Tox. 4: H302; Eye Irrit. 2: H319; Skin Irrit. 2: H315 - Warning</td>
<td></td>
</tr>
</tbody>
</table>

To obtain more information on the risk of the substances consult sections 8, 11, 12, 15 and 16.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures:

The symptoms resulting from intoxication can appear after exposure, therefore, in case of doubt, seek medical attention for direct exposure to the chemical product or persistent discomfort, showing the SDS of this product.

By inhalation:

This product does not contain substances classified as dangerous for inhalation, however, in case of symptoms of intoxication remove the person affected from the exposure area and provide with fresh air. Seek medical attention if the symptoms get worse or persist.

By skin contact:

Remove contaminated clothing and footwear, rinse skin or shower the person affected if appropriate with plenty of cold water and neutral soap. In serious cases see a doctor. If the product causes burns or freezing, clothing should not be removed as this could worsen the injury caused if it is stuck to the skin. If blisters form on the skin, these should never be burst as this will increase the risk of infection.

By eye contact:

Rinse eyes thoroughly with lukewarm water for at least 15 minutes. Do not allow the person affected to rub or close their eyes. If the injured person uses contact lenses, these should be removed unless they are stuck to the eyes, as this could cause further damage. In all cases, after cleaning, a doctor should be consulted as quickly as possible with the SDS of the product.

By ingestion/aspiration:

Request medical assistance immediately, showing the SDS of this product. Do not induce vomiting, but if it does happen keep the head up to avoid inhalation. In the case of loss of consciousness do not administrate anything orally unless supervised by a doctor. Rinse out the mouth and throat, as they may have been affected during ingestion. Keep the person affected at rest.

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

Acute and delayed effects are indicated in sections 2 and 11.

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

Non-applicable

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media:

Product is non-flammable under normal conditions of storage, manipulation and use. In the case of inflammation as a result of improper manipulation, storage or use preferably use polyvalent powder extinguishers (ABC powder), in accordance with the Regulation on fire protection systems. IT IS NOT RECOMMENDED to use tap water as an extinguishing agent.

5.2 Special hazards arising from the substance or mixture:

As a result of combustion or thermal decomposition reactive sub-products are created that can become highly toxic and, consequently, can present a serious health risk.

5.3 Advice for firefighters:

Depending on the magnitude of the fire it may be necessary to use full protective clothing and individual respiratory equipment. Minimum emergency facilities and equipment should be available (fire blankets, portable first aid kit,...) in accordance with Directive 89/654/EC.

Additional provisions:

- CONTINUED ON NEXT PAGE -
SECTION 5: FIREFIGHTING MEASURES (continue)

Act in accordance with the Internal Emergency Plan and the Information Sheets on actions to take after an accident or other emergencies. Destroy any source of ignition. In case of fire, refrigerate the storage containers and tanks for products susceptible to inflammation, explosion or BLEVE as a result of high temperatures. Avoid spillage of the products used to extinguish the fire into an aqueous medium.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:
Sweep up and shovel product or other means and place in container for reuse (preferred) or disposal
6.2 Environmental precautions:
This product is not classified as dangerous to the environment. Keep product away from drains, surface and underground water.
6.3 Methods and material for containment and cleaning up:
It is recommended:
Sweep up and shovel product or other means and place in container for reuse (preferred) or disposal
6.4 Reference to other sections:
See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling:
A.- Precautions for safe manipulation
Comply with the current legislation concerning the prevention of industrial risks. Keep containers hermetically sealed. Control spills and residues, destroying them with safe methods (section 6). Avoid leakages from the container. Maintain order and cleanliness where dangerous products are used.
B.- Technical recommendations for the prevention of fires and explosions
Due to its non-flammable nature, the product does not present a fire risk under normal conditions of storage, manipulation and use.
C.- Technical recommendations to prevent ergonomic and toxicological risks
Do not eat or drink during the process, washing hands afterwards with suitable cleaning products.
D.- Technical recommendations to prevent environmental risks
It is recommended to have absorbent material available at close proximity to the product (See subsection 6.3)

7.2 Conditions for safe storage, including any incompatibilities:
A.- Technical measures for storage
   Minimum Temp.: 2 °C
   Maximum Temp.: 25 °C
   Maximum time: 48 Months
B.- General conditions for storage
   Avoid sources of heat, radiation, static electricity and contact with food. For additional information see subsection 10.5

7.3 Specific end use(s):
Except for the instructions already specified it is not necessary to provide any special recommendation regarding the uses of this product.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters:
Substances whose occupational exposure limits have to be monitored in the work environment
Nuisance dust: Inhalable dust 10 mg/m³ // Respirable dust 4 mg/m³
8.2 Exposure controls:
SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

A. - General security and hygiene measures in the workplace

As a preventative measure it is recommended to use basic Personal Protection Equipment, with the corresponding <<CE marking>> in accordance with Directive 89/686/EC. For more information on Personal Protection Equipment (storage, use, cleaning, maintenance, class of protection,...) consult the information leaflet provided by the manufacturer. For more information see subsection 7.1.

All information contained herein is a recommendation which needs some specification from the labour risk prevention services as it is not known whether the company has additional measures at its disposal.

B. - Respiratory protection

The use of protection equipment will be necessary if a mist forms or if the professional exposure limits are exceeded.

C. - Specific protection for the hands

<table>
<thead>
<tr>
<th>Pictogram</th>
<th>PPE</th>
<th>Labelling</th>
<th>CEN Standard</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chemical protective gloves</td>
<td></td>
<td>EN 374-1:2003</td>
<td>Replace the gloves at any sign of deterioration.</td>
</tr>
</tbody>
</table>

D. - Ocular and facial protection

<table>
<thead>
<tr>
<th>Pictogram</th>
<th>PPE</th>
<th>Labelling</th>
<th>CEN Standard</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Panoramic glasses against</td>
<td></td>
<td>EN 166:2001</td>
<td>Clean daily and disinfect periodically according to manufacturer’s instructions. Use if there is a risk of splashing.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EN ISO 4007:2012</td>
<td></td>
</tr>
</tbody>
</table>

E. - Bodily protection

<table>
<thead>
<tr>
<th>Pictogram</th>
<th>PPE</th>
<th>Labelling</th>
<th>CEN Standard</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Work clothing</td>
<td></td>
<td>EN ISO 13688:2013</td>
<td>For professional use only.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Anti-slip work shoes</td>
<td></td>
<td>EN ISO 20347:2012</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EN ISO 20344:2011</td>
<td></td>
</tr>
</tbody>
</table>

F. - Additional emergency measures

<table>
<thead>
<tr>
<th>Emergency measure</th>
<th>Standards</th>
<th>Emergency measure</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency shower</td>
<td>ANSI Z358-1</td>
<td>Eyewash stations</td>
<td>DIN 12 899</td>
</tr>
</tbody>
</table>

Environmental exposure controls:
In accordance with the community legislation for the protection of the environment it is recommended to avoid environmental spillage of both the product and its container. For additional information see subsection 7.1.D

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

For complete information see the product datasheet.

**Appearance:**

Physical state at 20 ºC: Solid

Appearance: Not available

Color: Not available

*Not relevant due to the nature of the product, not providing information property of its hazards.

- CONTINUED ON NEXT PAGE -
SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (continue)

Odor: Not available

Volatile:
Boiling point at atmospheric pressure: Non-applicable *
Vapour pressure at 20 ºC: Non-applicable *
Vapour pressure at 50 ºC: Non-applicable *
Evaporation rate at 20 ºC: Non-applicable *

Product description:
Density at 20 ºC: Non-applicable *
Relative density at 20 ºC: Non-applicable *
Dynamic viscosity at 20 ºC: Non-applicable *
Kinematic viscosity at 20 ºC: Non-applicable *
Kinematic viscosity at 40 ºC: Non-applicable *
Concentration: Non-applicable *
pH: Non-applicable *
Vapour density at 20 ºC: Non-applicable *
Partition coefficient n-octanol/water 20 ºC: Non-applicable *
Solubility in water at 20 ºC: Non-applicable *
Solubility properties: Non-applicable *
Decomposition temperature: Non-applicable *
Melting point/freezing point: Non-applicable *

Flammability:
Flash Point: Non Flammable (>60 ºC)
Autoignition temperature: Non-applicable *
Lower flammability limit: Non-applicable *
Upper flammability limit: Non-applicable *

9.2 Other information:
Surface tension at 20 ºC: Non-applicable *
Refraction index: Non-applicable *

*Not relevant due to the nature of the product, not providing information property of its hazards.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:
No hazardous reactions are expected if the following technical instructions storage of chemicals. See section 7.

10.2 Chemical stability:
Chemically stable under the conditions of storage, handling and use.

10.3 Possibility of hazardous reactions:
Under the specified conditions, hazardous reactions that lead to excessive temperatures or pressure are not expected.

10.4 Conditions to avoid:
Applicable for handling and storage at room temperature:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Contact with air</th>
<th>Increase in temperature</th>
<th>Sunlight</th>
<th>Humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shock and friction</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

10.5 Incompatible materials:

<table>
<thead>
<tr>
<th>Category</th>
<th>Acids</th>
<th>Water</th>
<th>Combustible materials</th>
<th>Combustible materials</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
SECTION 10: STABILITY AND REACTIVITY (continue)

10.6 Hazardous decomposition products:
See subsection 10.3, 10.4 and 10.5 to find out the specific decomposition products. Depending on the decomposition conditions, complex mixtures of chemical substances can be released: carbon dioxide (CO2), carbon monoxide and other organic compounds.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:
The experimental information related to the toxicological properties of the product itself is not available

Dangerous health implications:
In case of exposure that is repetitive, prolonged or at concentrations higher than recommended by the occupational exposure limits, it may result in adverse effects on health depending on the means of exposure:
A- Inhalation:
   - Acute toxicity: The consumption of a considerable dose can cause irritation in the throat, abdominal pain, nausea and vomiting.
   - Corrosivity/Irritability: The consumption of a considerable dose can cause irritation in the throat, abdominal pain, nausea and vomiting.
B- Skin:
   - Acute toxicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
   - Corrosivity/Irritability: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
C- Contact with the skin and the eyes:
   - Contact with the skin: Produces skin inflammation.
   - Contact with the eyes: Produces eye damage after contact.
D- CMR effects (carcinogenicity, mutagenicity and toxicity to reproduction):
   - Carcinogenicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for the effects mentioned. For more information see section 3.
   - Mutagenicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
   - Reproductive toxicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
E- Sensitizing effects:
   - Respiratory: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous with sensitilizing effects. For more information see section 3.
   - Cutaneous: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
F- Specific target organ toxicity (STOT)-time exposure:
   Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
G- Specific target organ toxicity (STOT)-repeated exposure:
   - Specific target organ toxicity (STOT)-repeated exposure: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
   - Skin: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
H- Aspiration hazard:
   Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

Other information:
Non-applicable

Specific toxicology information on the substances:
SECTION 11: TOXICOLOGICAL INFORMATION (continue)

<table>
<thead>
<tr>
<th>Identification</th>
<th>Acute toxicity</th>
<th>Genus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferrous sulfate heptahydrate</td>
<td>LD50 oral 500 mg/kg (ATEi)</td>
<td></td>
</tr>
<tr>
<td>CAS: 7782-63-0</td>
<td>LD50 dermal Non-applicable</td>
<td></td>
</tr>
<tr>
<td>EC: 231-753-5</td>
<td>LC50 inhalation Non-applicable</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 12: ECOLOGICAL INFORMATION

The experimental information related to the eco-toxicological properties of the product itself is not available

12.1 Toxicity:
Not available

12.2 Persistence and degradability:
Not available

12.3 Bioaccumulative potential:
Not available

12.4 Mobility in soil:
Not available

12.5 Results of PBT and vPvB assessment:
Non-applicable

12.6 Other adverse effects:
Not described

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Waste class (Regulation (EU) No 1357/2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>It is not possible to assign a specific code, as it depends on the intended use by the user</td>
<td>Dangerous</td>
</tr>
</tbody>
</table>

Type of waste (Regulation (EU) No 1357/2014):
HP4 Irritant — skin irritation and eye damage

Waste management (disposal and evaluation):
Consult the authorized waste service manager on the assessment and disposal operations in accordance with Annex 1 and Annex 2 (Directive 2008/98/EC). As under 15 01 (2014/955/EC) of the code and in case the container has been in direct contact with the product, it will be processed the same way as the actual product. Otherwise, it will be processed as non-dangerous residue. We do not recommended disposal down the drain. See paragraph 6.2.

Regulations related to waste management:
In accordance with Annex II of Regulation (EC) n°1907/2006 (REACH) the community or state provisions related to waste management are stated

SECTION 14: TRANSPORT INFORMATION

The transport of dangerous goods only applies to finished products.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:
Candidate substances for authorisation under the Regulation (EC) 1907/2006 (REACH): Non-applicable
Substances included in Annex XIV of REACH ("Authorisation List") and sunset date: Non-applicable
SECTION 15: REGULATORY INFORMATION (continue)

Regulation (EC) 1005/2009, about substances that deplete the ozone layer: Non-applicable
Active substances for which a decision of non-inclusion onto Annex I (Regulation (EU) No 528/2012): Non-applicable
REGULATION (EU) No 649/2012, in relation to the import and export of hazardous chemical products: Non-applicable

Limitations to commercialisation and the use of certain dangerous substances and mixtures (Annex XVII, REACH):
Non-applicable

Specific provisions in terms of protecting people or the environment:
It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of the local circumstances in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.

Other legislation:
The product could be affected by sectorial legislation

15.2 Chemical safety assessment:
The supplier has not carried out evaluation of chemical safety.

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:
This safety data sheet has been designed in accordance with ANNEX II-Guide to the compilation of safety data sheets of Regulation (EC) Nº 1907/2006 (Regulation (EU) Nº 453/2010, Regulation (EC) Nº 2015/830)

Modifications related to the previous security card which concerns the ways of managing risks.:
Non-applicable

Texts of the legislative phrases mentioned in section 2:
H315: Causes skin irritation
H302: Harmful if swallowed
H319: Causes serious eye irritation

Texts of the legislative phrases mentioned in section 3:
The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3

CLP Regulation (EC) nº 1272/2008:
Acute Tox. 4: H302 - Harmful if swallowed
Eye Irrit. 2: H319 - Causes serious eye irritation
Skin Irrit. 2: H315 - Causes skin irritation

Classification procedure:
Skin Irrit. 2: Calculation method
Acute Tox. 4: Calculation method
Eye Irrit. 2: Calculation method

Advice related to training:
Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources:
http://esis.jrc.ec.europa.eu
http://echa.europa.eu
http://eur-lex.europa.eu

Abbreviations and acronyms:

- CONTINUED ON NEXT PAGE -
## SECTION 16: OTHER INFORMATION (continue)

- ADR: European agreement concerning the international carriage of dangerous goods by road
- IMDG: International maritime dangerous goods code
- IATA: International Air Transport Association
- ICAO: International Civil Aviation Organisation
- COD: Chemical Oxygen Demand
- BOD5: 5-day biochemical oxygen demand
- BCF: Bioconcentration factor
- LD50: Lethal Dose 50
- LC50: Lethal Concentration 50
- EC50: Effective concentration 50
- Log-POW: Octanol–water partition coefficient
- Koc: Partition coefficient of organic carbon

The information contained in this security data sheet is based on sources, technical knowledge and current legislation at European and state level, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product, it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within our awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this security data sheet only refers to this product, which should not be used for needs other than those specified.

- END OF SAFETY DATA SHEET -