ADVANCED ANALYTICAL TECHNOLOGIES, INC.

Safety Data Sheet
FP-5201 RNA Separation 5201 Gel

SECTION 1: Identification

1.1 Product identifier

Product name  FP-5201 RNA Separation 5201 Gel

1.2 Recommended use of the chemical and restrictions on use

For Research and Development/Experimental Use Only

1.3 Supplier’s details

Name  Advanced Analytical Technologies, Inc.
Address  2450 SE Oak Tree Ct.
         Suite 101
         Ankeny, IA 50021
         USA

Telephone  515-964-8500
Fax  515-964-7377

1.4 Emergency phone number(s)

515-964-8500 (Monday-Friday 8:00AM-5:00PM CST)

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

GHS classification in accordance with OSHA (29 CFR 1910.1200)
- Acute toxicity, oral (chapter 3.1), Cat. 4
- Specific target organ toxicity, single exposure (chapter 3.8), Cat. 3
- Specific target organ toxicity, repeated exposure (chapter 3.9), Cat. 2

2.2 GHS label elements, including precautionary statements

Pictogram

Signal word  Warning
Hazard statement(s)
H302 Harmful if swallowed
H336 May cause drowsiness or dizziness
H373 May cause damage to organs through prolonged or repeated exposure

Precautionary statement(s)
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P264 Wash face, hands and any exposed skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P314 Get medical advice/attention if you feel unwell.
P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.
P330 Rinse mouth.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 Call a POISON CENTER/doctor/physician if you feel unwell.
P403+P233 Store in a well ventilated place. Keep container tightly closed.
P405 Store locked up.
P501 Dispose of contents/container to an approved waste disposal plant.

2.3 Other hazards which do not result in classification
None identified.

SECTION 3: Composition/information on ingredients

3.1 Substances

Hazardous components

1. ETHYLENE GLYCOL
Concentration 10 % (Weight)*
Other names / synonyms 1,2-DIHYDROXYETHANE; 1,2-ETHANDIOL; 1,2-ETHANEDIOL; DOWTHERM SR 1; ETHANE-1,2-DIOL; ethanediol; ETHYLENE ALCOHOL; ETHYLENE DIHYDRATE; ETHYLENE GLYCOL; ETHYLENEGLYCOL; GLYCOL; GLYCOL ALCOHOL; LUTROL 9; M.E.G.; MACROGOL 400 BPC; MONOETHYLENE GLYCOL; NCI-C00920; NORKOOL; TESCOL; UCAR 17
EC no. 203-473-3
CAS no. 107-21-1
Index no. 603-027-00-1

Other Components:

2. WATER
Concentration > 79 %* 
Other names / synonyms DIHYDROGEN OXIDE; HYDROGEN OXIDE
CAS no. 7732-18-5

3. Proprietary Non-hazardous Buffer Components*
Concentration 6 - 9 %*
4. Proprietary Non-hazardous Water-soluble polymer*
   Concentration < 1 %*

5. 2-Methyl 4-isothiazolin-3-one
   Concentration 0.02 %

Trade secret statement (OSHA 1910.1200(i))
*The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled
   Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Get medical attention immediately if symptoms occur.

In case of skin contact
   Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.

In case of eye contact
   Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

If swallowed
   Do not induce vomiting. Call a physician or Poison Control Center immediately.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media
   Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Specific hazards arising from the chemical
   Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

5.3 Special protective actions for fire-fighters
   As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
   Ensure adequate ventilation. Use personal protective equipment.

6.2 Environmental precautions
   Should not be released into the environment. See Section 12 for additional ecological information.

6.3 Methods and materials for containment and cleaning up
   Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.
SECTION 7: Handling and storage

7.1 Precautions for safe handling
Wear personal protective equipment. Ensure adequate ventilation. Do not breathe vapors or spray mist. Avoid contact with skin, eyes and clothing.

7.2 Conditions for safe storage, including any incompatibilities
Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

1. ETHYLENE GLYCOL (CAS: 107-21-1)
   TLV®: Ceiling: 100 mg/m3 (ACGIH)

2. ETHYLENE GLYCOL (CAS: 107-21-1)
   PEL-C: (Vacated) Ceiling: 50 ppm (Vacated) Ceiling: 125 mg/m3 (OSHA)

3. ETHYLENE GLYCOL (CAS: 107-21-1)
   TWA: Ceiling: 100 mg/m3; Mexico

4. ETHYLENE GLYCOL (CAS: 107-21-1)
   TWAEV: CEV: 100 mg/m3; Ontario

5. ETHYLENE GLYCOL (CAS: 107-21-1)
   Ceiling: 50 ppm Ceiling: 127 mg/m3; Quebec

8.2 Appropriate engineering controls
Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

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

   Eye/face protection
   Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA’s eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

   Skin protection
   Wear appropriate protective gloves and clothing to prevent skin exposure.

   Respiratory protection
   Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance/form</td>
<td>Clear, colorless to faint yellow, slightly viscous liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Negligible odor</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
</tbody>
</table>
### Safety Data Sheet
**FP-5201 RNA Separation 5201 Gel**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point/freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper/lower flammability limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper/lower explosive limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>Completely miscible in water</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Slightly viscous</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
</tbody>
</table>

### SECTION 10: Stability and reactivity

#### 10.3 Possibility of hazardous reactions
None under normal processing.

#### 10.4 Conditions to avoid
- Incompatible products
- Excess heat
- Exposure to moist air or water

#### 10.5 Incompatible materials
- Strong oxidizing agents
- Strong acids
- Strong bases
- Aldehydes

#### 10.6 Hazardous decomposition products
- Carbon monoxide (CO)
- Carbon dioxide (CO2)

### SECTION 11: Toxicological information

#### Information on toxicological effects

<table>
<thead>
<tr>
<th>Effect</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acute toxicity</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Skin corrosion/irritation</strong></td>
<td>May cause eye, skin, and respiratory tract irritation</td>
</tr>
<tr>
<td><strong>Serious eye damage/irritation</strong></td>
<td>May cause eye, skin, and respiratory tract irritation</td>
</tr>
<tr>
<td><strong>Respiratory or skin sensitization</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Germ cell mutagenicity</strong></td>
<td>Mutagenic effects have occurred in humans.</td>
</tr>
<tr>
<td><strong>Carcinogenicity</strong></td>
<td>IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.</td>
</tr>
</tbody>
</table>
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
Experiments have shown reproductive toxicity effects on laboratory animals. Developmental effects have occurred in experimental animals.

STOT-single exposure
Central nervous system (CNS)

STOT-repeated exposure
Kidney, Liver

Aspiration hazard
No data available

SECTION 12: Ecological information

Toxicity
Do not empty into drains.
Ethylene glycol:

| Freshwater Algae     | 6500-13000 mg/L EC50 96 h |
| Freshwater Fish      | 16000 mg/L LC50 96 h     |
|                     | 40000 - 60000 mg/L LC50 96 h |
|                     | 40761 mg/L LC50 96 h     |
|                     | 27540 mg/L LC50 96 h     |
|                     | 14 - 18 mL/L LC50 96 h   |
|                     | 41000 mg/L LC50 96 h     |
| Water Flea          | 46300 mg/L EC50 48 h     |

Persistence and degradability
No data available

Bioaccumulative potential
No data available

Mobility in soil
Ethylene glycol log POW: -1.93

Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

SECTION 13: Disposal considerations

Disposal of the product
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

SECTION 14: Transport information

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

SARA 313 Components
Ethylene Glycol CAS # 107-21-1

SARA 311/312 Hazards
Acute Health Hazard Yes
Chronic Health Hazard Yes
Fire Hazard No
Sudden Release of Pressure Hazard No
Reactive Hazard No

Massachusetts Right To Know Components
Ethylene Glycol CAS # 107-21-1

New Jersey Right To Know Components
Ethylene Glycol CAS # 107-21-1
2-Methyl 4-isothiazolin-3-one CAS # 2682-20-4

Pennsylvania Right To Know Components
Ethylene Glycol CAS # 107-21-1
2-Methyl 4-isothiazolin-3-one CAS # 2682-20-4

Illinois Right To Know Components
Ethylene Glycol CAS # 107-21-1

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16: Other information

Revision date: September 27, 2016
This information provided concerning this Safety Data Sheet is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, expressed or implied, with respect to such information and we assume no liability resulting from its use. Users should make their own investigations to determining the suitability of the information for their particular purposes. This material is for R&D/experimental use only. In no event shall Advanced Analytical be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, however arising, even if Advanced Analytical has been advised of the possibility of such damages.

Responsibility for SDS:
Advanced Analytical Technologies, Inc.
2450 SE Oak Tree Ct., Suite 101
Ankeny, IA 50021
515-964-8500