MATERIAL SAFETY DATA SHEET
FLUORODEOXYGLUCOSE –F18

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Fluorodeoxyglucose-F18
Synonyms: FDG, (18F)FDG
Manufacturer: IBA Molecular North America, Inc.

Revision Date: April 6, 2011
Information Telephone Number: (703) 787-7900
Emergency Telephone Number: (800) 711-6207

21000 Atlantic Blvd., Suite 730
Dulles, Virginia 20166

SECTION 2. COMPOSITION, INFORMATION ON INGREDIENTS

Chemical Formula: Not applicable to mixtures

Chemical Ingredients:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>Wt %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Fluoro-2-deoxy-D-glucose</td>
<td>29702-43-0</td>
<td>&lt;0.001%</td>
</tr>
<tr>
<td>Sodium Chloride</td>
<td>7647-14-5</td>
<td>0.9%</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>~99%</td>
</tr>
</tbody>
</table>

SECTION 3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
CAUTION! RADIOACTIVE MATERIAL. Read Package Insert prior to use. Promptly remove any contamination from skin, eyes, or clothing. Radioactive drugs must be handled by qualified personnel in conformity with regulations appropriate to the government agency authorized to license the use of this radionuclide. The vial or syringe containing the drug should be kept within its container or within heavier shielding. Avoid contact with the radioactive contents, which would cause unnecessary exposure to radiation.

POTENTIAL HEALTH EFFECTS

Inhalation:
FDG does not easily become airborne. Not expected to be a health hazard via inhalation.

Ingestion:
May cause asymptomatic physiological uptake by specific target organs or tissues.

Skin Contact:
Not expected to produce any acute adverse health effects.

Eye Contact:
No adverse effect expected, but may cause mechanical irritation.

Chronic Exposure:
The health risks associated with chronic radiation exposure (cancer, leukemia, genetic and teratogenic effects) are believed to involve levels of radiation exposure which are much higher than those permitted occupationally.

Aggravation of Pre-existing Conditions:
No information found.
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SECTION 4. FIRST AID MEASURES

Inhalation:
Notify radiation safety personnel immediately. The amount of material should be assessed and documented.

Skin Exposure:
If skin contact occurs, wash the affected area thoroughly with soap and water until no more radioactivity can be removed. Always blot dry. Do not abrade skin. Notify radiation safety personnel.

Ingestion:
Notify radiation safety personnel immediately. The amount of material ingested should be assessed and documented.

Eye Exposure:
If a splash occurs, wash eyes with water for at least 15 minutes or until no more radioactivity can be removed. Notify radiation safety personnel.

SECTION 5. FIRE FIGHTING MEASURES

Flammability: Not a flammable material.

Fire/Explosion Hazards: Not considered to be a fire or explosion hazard.

Fire Extinguishing Media: Use any means suitable for extinguishing surrounding fire.

Special Instructions: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full-face piece operated in the pressure demand or positive pressure mode.

SECTION 6. ACCIDENTAL RELEASE MEASURES

If the product is received in a leaking condition or any loss or release of the radioactive contents occurs, notify your Radiation Safety Department and IBA/Eastern Isotopes at (800) 711-6207. All cleanup operations should be performed according to the Standard Operating Procedures (SOPs) established for your facility and by the NRC or other applicable local, state or federal regulations.

SECTION 7. HANDLING AND STORAGE

Store at room temperature (15° C to 30° C) Handling time should be kept to a minimum and appropriate shielding should be used. Handling devices such as syringe shields and tongs should be used. Storage and disposal of products should be controlled in a manner, which is in compliance with the appropriate regulations of the federal or state government agency authorized to license the use of this radionuclide.
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SECTION 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

Airborne Exposure Limits:
- NRC Occupational derived air concentration is 3 x 10⁻⁵ µCi/ml of air.
- NRC Non-occupational average annual concentration limit is 1 x 10⁻⁷ µCi/ml of air.

Engineering Control:
Properly sealed containers are not expected to require any special ventilation.

Respiratory Protection:
Not expected to require personal respirator usage.

Skin Protection:
Disposable plastic, latex or rubber gloves; lab coat.

Eye/Face Protection:
Safety glasses.

Precautions:
No smoking, eating, or drinking should be allowed in any area where radioactive materials are handled or stored.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear colorless solution.
Odor: Odorless.
Solubility: Soluble in water.
Boiling Point: ca. 100°C (212°F)
Melting Point: ca. 0°C (32°F)
Radioactivity: 0.005 to 10 Ci of F18 on the calibration date and time.
Concentration: 0.005 to 660 mCi/mL of F-18 on the calibration date and time.
Specific Activity: >100 mCi/µg of F-18 on the calibration date and time.
Half Life: 109.3 minutes.
Vapor Density (Air=1): No information found.
Vapor Pressure (mm Hg): No information found.

SECTION 10. STABILITY AND REACTIVITY

Stability: Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products: May emit radioactive fumes containing F-18 when heated to decomposition.

Hazardous Polymerization: Will not occur.

Incompatibilities: No information found.

SECTION 11. TOXICOLGICAL INFORMATION

It is widely accepted by the scientific community that exposure to sufficient quantities of ionizing radiation can potentially cause harmful biological effects which include cancer, leukemia, and genetic and teratogenic effects. FDG is a glucose analogue, acting like sugar, which concentrates in cells that rely upon glucose as a primary energy source. In clinical trials, possible adverse reactions from this sugar might be transient hypotension, hypo- or hyperglycemia or transient increase in alkaline phosphatase.
Because this product is intended for use by hospital or clinic patients, it is expected to be treated by standard wastewater treatment facilities with no adverse environmental impacts.

FDG is a Radioactive Waste until the activity has decayed to non-detectable levels. Radioactive waste must be handled in accordance with procedures established by your Radiation Safety Officer, NRC and other applicable regulations.

If medical waste is involved, such as blood, blood products, or sharps, the waste must be handled as a Biohazard and disposed of accordingly.

If not radioactive or a biohazard, waste FDG is considered non-hazardous. Consult local, state and federal regulations for proper disposal.

**SECTION 12. ECOLOGICAL INFORMATION**

**SECTION 13. DISPOSAL CONSIDERATIONS**

DOT (Department of Transportation):
- Domestic US Ground Shipments
- Proper Shipping Name: Radioactive Material, Type A Package
- Hazard Class: 7
- Identification Number: UN2915

IATA and ICAO:
- Commercial Air or International
- Proper Shipping Name: Radioactive Material, Type A Package
- Hazard Class: 7
- Identification Number: UN2915

**SECTION 14. TRANSPORTATION INFORMATION**

**SECTION 15. REGULATORY INFORMATION**

OSHA Hazard Communication:
This product is considered hazardous under OSHA Hazard Communication Standard (29 CFR 1910-1200)

CERCLA Reportable Quantities:
F-18 FDG = 10,000 Ci (3.7 x 10^{14} Bq)
Releases to air, land or water of these hazardous substances, which exceed the Reportable Quantity (RQ), must be reported to the National Response Center at 800-424-8802.

SARA Title III
- 302 Extremely Hazardous Substances: None
- 311/312 Hazard Categories: Chronic
- 313 Toxic substances subject to annual release reporting requirements: None

RCRA Hazardous Waste Status
Non-hazardous (See Section 13 for additional details)

California Proposition 65 Warning
This product contains a substance known to the State of California to cause cancer.
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