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

1.1 Product identifier
   Product Name: HIV-1 (Ba-L Strain) Direct Pelleted Virus (500X)
   Catalog Number: 10-177-250

1.2 Relevant identified uses of the substance or mixture and uses advised against
   SU24 Scientific research and development

1.3 Details of the supplier of the safety data sheet
   Manufacturing Supplier: Advanced Biotechnologies, Inc
   1545 Progress Way
   Eldersburg, MD 21784
   Telephone: (410) 792-9779

1.4 Emergency telephone number
   24 Hour Emergency Number: ChemTel, Inc 1-800-255-3924

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
   Classification according to Regulation (EC) No 1272/2008
   This product is not classified as hazardous according to the Regulation (EC) No 1272/2008 and subsequent amendments.
   This product is not classified as hazardous according to the Globally Harmonized System (GHS).
   This product is not classified as hazardous according to OSHA GHS regulations within the U.S.

2.2 Label elements
   Labelling according to Regulation (EC) No 1272/2008
   This product does not have a classification according to the CLP regulation.
   This product is not classified as hazardous according to the OSHA GHS regulations within the U.S.
   GHS Elements: Not Regulated
   Hazard Pictograms: Not Regulated
   Signal Word: Not Regulated
   Hazard-determining components of labelling: None
   Hazard statements: Not Regulated

2.3 Other hazards
   Hazards Not Otherwise Classified (HOC) or covered by GHS
   This preparation of HIV-1 is a BIOHAZARDOUS material containing ACTIVE VIRUS and should be handled in accordance with biosafety guidelines defined in the BMBL, NIH-CDC HHS publication No. (CDC) 21-1112.
   Category: WHO Risk Group 3
   Emergency Overview: Biohazardous
   Pathogenicity: AIDS is characterized by symptoms and infections caused by the breakdown of the immune system due to HIV infection. HIV can infect many types of cells, mainly lymphocytes, but also macrophages, and microglia in the brain, and other neurological cells, resulting in profound asthenia, dementia and damage to the peripheral nervous system. Due to immunodeficiency, patients succumb to various fungi, parasites, bacteria, and/or viruses and are prone to certain tumors. Globally, Mycobacterium tuberculosis is the most common cause of death of HIV-infected individuals.
   Potential Health Effects: The clinical features of HIV infection vary depending on the stage of the disease. Acute infection is accompanied by non-specific “flu-like” and “mononucleosis-like” symptoms such as myalgia, arthralgia, diarrhea, nausea, vomiting, headache, hepatosplenomegaly, weight loss and neurological symptoms. Early-stage disease refers to the period of clinical latency between the time of the primary infection and the development of symptoms indicative of advanced immunodeficiency. Typically, when the patient’s CD4+ T-cell count falls below 500 cells/µl,
syndromes indicative of depressed cell mediated immunity can appear. Examples include oropharyngeal and recurrent vulvovaginal candidiasis, bacillary angiomatosis, recurrent or multidermatomal herpes zoster, listeriosis, infections due to Rhodococcus equi, pelvic inflammatory disease, oral hairy leukoplakia associated with Epstein-Barr virus, cervical dysplasia, long lasting diarrhea, idiopathic thrombocytopenic purpura and peripheral neuropathy. Late-stage disease refers to the period when the patient’s CD4+ T-cell count falls below 200 cells/µl. The loss of the integrity of cell-mediated immune responses allows ubiquitous environmental organisms with limited virulence to become life threatening pathogens. Examples of conditions (as set out by the U.S. Centers for Disease Control and Prevention) include candidiasis of bronchi, trachea, lungs or oesophagus, invasive cervical cancer, coccidioidomycosis, cryptococcosis, cryptosporidiosis, cytomegalovirus disease (other than liver, spleen or nodes) cytomegalovirus retinitis (with loss of vision), HIV-related encephalopathy, herpes simplex, histoplasmosis, isosporiasis, Kaposi’s sarcoma, Burkitt’s lymphoma, immunoblastic lymphoma, primary lymphoma of the brain, Mycobacterium avium complex, Mycobacterium tuberculosis, Pneumocystis jiroveci pneumonia, recurrent pneumonia, progressive multifocal leukoencephalopathy, recurrent salmonella septicaemia, toxoplasmosis of the brain and wasting syndrome due to HIV. (Original Pathogen Safety Data Sheet and Risk Assessment located at publichealth.gc.ca)

Host Range: Humans.

Results of PBT and vPvB assessment

<table>
<thead>
<tr>
<th>PBT</th>
<th>vPvB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

SECTION 3: Composition/information on ingredients

3.2 Mixtures
Description: Mixture consisting of the following components with Human Immunodeficiency Virus Type 1.

<table>
<thead>
<tr>
<th>Components</th>
<th>Concentration/Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dulbecco’s Modified Eagle’s Medium (DMEM)</td>
<td>1X</td>
</tr>
<tr>
<td>Fetal Bovine Serum (FBS)</td>
<td>20%</td>
</tr>
<tr>
<td>Gentamicin, Sulfate</td>
<td>25 µg/mL</td>
</tr>
<tr>
<td>Human Immunodeficiency Virus Type 1</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1 Description of first aid measures

| After inhalation | Supply fresh air and seek medical advice. |
| After skin contact | Immediately wash with water and soap and rinse thoroughly. Seek medical advice. |
| After eye contact | Rinse immediately with plenty of water and seek medical advice. |
| After swallowing | If swallowed, seek medical advice immediately and show the container/label/SDS. |

4.2 Most important symptoms and effects, both acute and delayed
No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed
No further relevant information available.
SECTION 5: Firefighting measures

5.1 Extinguishing media
Use fire extinguishing methods suitable to surrounding conditions.

5.2 Special hazards arising from the substance or mixture
No further relevant information available.

5.3 Advice for firefighters
Protective equipment: No special measures required.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
To minimize contact, wear a laboratory coat, nitrile or latex gloves, and protective glasses.

6.2 Environmental precautions
Disinfect material before disposal.

6.3 Methods and material for containment and cleaning up
Take up with absorbent material. Disinfect area with 3% hydrogen peroxide followed by 70% isopropyl alcohol.

6.4 Reference to other sections
See Section 7 for Safe Handling.
See Section 8 for Exposure Controls.
See Section 13 for Disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
As per the Biosafety in Microbiological and Biomedical Laboratories (BMBL), activities such as producing research-laboratory-scale quantities, manipulating concentrated virus preparations, and conducting procedures that may produce droplets or aerosols, are performed in a BSL-2 facility, using BSL-3 practices. Activities involving large-scale volumes or preparation of concentrated HIV are conducted at BSL-3. Wear appropriate protective equipment (see Section 8). Practice good work hygiene.

7.2 Conditions for safe storage, including any incompatibilities
Storage temperature ≤ -70°C in well-sealed receptacle.

7.3 Specific end use(s)
No further relevant information available.
SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Ingredients with limit values that require monitoring at the workplace
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

8.2 Exposure controls
Personal protective equipment
General protective/hygienic measures
The usual precautionary measures are to be adhered to when handling chemicals and biological material.

Ventilation
Work in a biological safety cabinet to reduce the possibility of exposure.

Respiratory protection
Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard, if a risk assessment indicates this is necessary.

Protection of hands
Protective gloves (i.e. nitrile or equivalent).

Eye protection
Safety glasses or safety goggles, as appropriate.

Body protection
Protective work clothing and laboratory coats.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties
General Information
Appearance
Form: Liquid
Color: Reddish

Odor
Odorless

Odor Threshold
Does not apply, as substance is odorless.

pH
Not determined

Change in condition
Melting point/Melting range: Not determined
Boiling point/Boiling range: Not determined

Flash point
Not applicable

Evaporation rate
Not determined

Flammability (solid, gaseous)
Does not apply, substance is a liquid.

Auto/Self-ignition temperature
Not determined

Decomposition temperature
Not determined

Self-igniting
Product is not self-igniting.

Danger of explosion
Product does not present an explosion hazard.

Vapor pressure/density
Not determined

Density
Not determined

Viscosity
Not determined

Solubility in/Miscibility with Water
Soluble

9.2 Other information
No further relevant information available.
SECTION 10: Stability and reactivity

10.1 Reactivity
No further relevant information available.

10.2 Chemical stability
No further relevant information available.

10.3 Possibility of hazardous reactions
No dangerous reactions known.

10.4 Conditions to avoid
No further relevant information available.

10.5 Incompatible materials
No further relevant information available.

10.6 Hazardous decomposition products
No further relevant information available.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Based on available data, the classification criteria are not met.

LD/LC50 values relevant for classification
Unknown

Primary irritant effect

Skin corrosion/irritation
Based on available data, the classification criteria are not met.

Serious eye damage/irritation
Based on available data, the classification criteria are not met.

Respiratory or skin sensitization
Based on available data, the classification criteria are not met.

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

Germ cell mutagenicity
Based on available data, the classification criteria are not met.

Carcinogenicity
Based on available data, the classification criteria are not met.

Reproductive toxicity
Based on available data, the classification criteria are not met.

STOT-single exposure
Based on available data, the classification criteria are not met.

STOT-repeated exposure
Based on available data, the classification criteria are not met.

Aspiration hazard
Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity
No further relevant information available.

12.2 Persistence and degradability
No further relevant information available.

12.3 Bioaccumulative potential
No further relevant information available.

12.4 Mobility in soil
No further relevant information available.

Other Information
The ecological effects have not been thoroughly investigated, but none have been identified.

General notes
Avoid release to the environment.

12.5 Results of PBT and vPvB assessment

PBT
None of the substances present are considered PBT.

vPvB
None of the substances present are considered vPvB.

12.6 Other adverse effects
No further relevant information available.
SECTION 13: Disposal considerations

13.1 Waste treatment methods
Recommendation
The user of this product has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state, and federal laws and regulations regarding treatment, storage, and disposal for hazardous and nonhazardous wastes.

Uncleaned packaging recommendation
Recommended cleansing agents
Disposal must be made according to official regulations.
Disinfection with 10% sodium hypochlorite (bleach) or 1:256 Lysol IC Quaternary Disinfectant Cleaner.

SECTION 14: Transport information

14.1 UN number
DOT, ADR, IMDG, IATA
UN 2814

14.2 UN proper shipping name
DOT, ADR, IMDG, IATA
Infectious substance, affecting humans

14.3 Transport hazard class(es)
DOT, ADR, IMDG, IATA Class
Class 6, Division 6.2

14.4 Packing group
DOT, ADR, IMDG, IATA
Intentionally Blank for Category A Infectious Substances

14.5 Environmental hazards
Marine Pollutant
Mixture Not Classified Marine Pollutant

14.6 Special precautions for user
Not Applicable

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code
Not Applicable

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Labelling according to Regulation (EC) No 1272/2008
The product is classified and labelled according to the CLP regulation.
Unites States (USA)
SARA Section 355 (extremely hazardous substances) None of the ingredients are listed.
SARA Section 313 (Specific toxic chemical listings) None of the ingredients are listed.
TSCA (Toxic Substances Control Act) All chemicals are listed.
Proposition 65 (California) None of the ingredients are listed.
Chemicals known to cause Cancer None of the ingredients are listed.
Chemicals known to cause reproductive toxicity for females None of the ingredients are listed.
Chemicals known to cause developmental toxicity None of the ingredients are listed.
Carcinogenic Categories
EPA (Environmental Protection Agency) None of the ingredients are listed.
IARC (International Agency for Research on Cancer) None of the ingredients are listed.
NIOSH-Ca (National Institute for Occupational Safety and Health) Gentamicin is not listed.
Canada - Canadian Domestic Substances List (DSL) WHO/HSE/GCR/2015.2: UN2814
International Regulations
Other regulations, limitations and prohibitive regulations
Seveso III Directive (2012/18/EU) None of the ingredients are listed.
Substances of very high concern (SVHC) None of the ingredients are listed.

15.2 Chemical safety assessment
A Chemical Safety Assessment has not been carried out.
SECTION 16: Other information

Disclaimer
The above information is believed to be accurate but does not purport to be all inclusive and shall be used only as a guide. Advanced Biotechnologies, Inc. shall not assume any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we can not guarantee that these are the only hazards that exist.

Abbreviations and acronyms
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DOT: US Department of Transportation
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
IATA: International Air Transport Association
IMDG: International Maritime Code for Dangerous Goods
LC50/LD50: Lethal concentration, 50 percent/Lethal dose, 50 percent
OSHA: Occupational Safety and Health Administration
PBT/vPvB: Persistent, Bioaccumulative and Toxic/very Persistent and very Bioaccumulative
PEL/REL: Permissible Exposure Limit/Recommended Exposure Limit
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals (EC 1907/2006)
SARA: Superfund Amendments and Reauthorization Act
STOT: Specific Target Organ Toxicity
SVHC: Candidate List of Substances of Very High Concern
TWA: Time Weighted Average

Date of Preparation
The effective date in the header of this document is the date of preparation and/or last revision.