1 DNA Way
So. San Francisco, CA 94080

For product information, call (650) 225-1000
In case of emergency, call (800) 821-8590

MATERIAL SAFETY DATA SHEET

Section 1 - Identity

Product Name:	Cathflo® Activase® (Alteplase)
Chemical Name	Human tissue-type plasminogen activator
Formula:	Polypeptide composed of 527 amino acids
CAS No.:	105857-23-6
Synonyms:	Tissue plasminogen activator, t-PA
Chemical Family:	Protein

Section 2 - Typical Composition

Component #1 – Powder Formulation

Each vial of Cathflo Activase contains 2.2 mg of Alteplase (which includes a 10% overfill), 77 mg of L-arginine, 0.2 mg of polysorbate 80, and phosphoric acid for pH adjustment. Each reconstituted vial will deliver 2 mg of Cathflo Activase, at a pH of approximately 7.3.

Component #2 – Sterile water for injection

Section 3 – Health Hazards

WARNING STATEMENT

CAUTION. Pharmaceutical product intended for research and development, clinical and manufacturing purposes only. Product contains tissue plasminogen activator. Dosage form contents may pose a health hazard only if exposure occurs to contents, e.g., after spill or leak. Repeated overexposure in manufacturing or from a significant spill may potentially cause effects seen in patients administered the drug such as increased potential for bleeding. Administration of three times the human clinical dose in laboratory animals caused lethality to the embryos of exposed pregnant animals. Avoid inhalation, skin contact, eye contact, and ingestion.

Routes of Absorption
Skin contact, eye contact, inhalation, and accidental ingestion.

Eye
No data available.

Skin
No data available. This product is not readily absorbed through the skin.

Systemic

Acute

In patients administered the drug effects observed include an increased risk of bleeding caused by a decrease in circulating fibrinogen.

Chronic

See acute effects.

Reproductive and Developmental Toxicity

Administration of three times the human clinical dose in laboratory animals caused lethality to the embryos of exposed pregnant animals. (See Section 11)

Mutagenicity

Not mutagenic in studies evaluating gene mutation and chromosomal effects. (See Section11).

Carcinogenicity

Not considered to be a carcinogenic hazard (See Section 11). Not listed by NTP, IARC or OSHA as a carcinogen.

Medical Conditions Aggravated by Exposure

None known or reported.

Occupational Exposure Limit

None currently established by OSHA, NIOSH, ACGIH, or Genentech.

Section 4 – First Aid Precautions

Eye Contact

Immediately flush eyes thoroughly with water for at least 15 minutes. If an irritation develops, notify medical personnel and supervisor.

Skin Contact

Immediately wash thoroughly with soap and water for 15 minutes. If an irritation or allergic reaction develops, notify medical personnel and supervisor.

Inhalation

Immediately move to fresh air and notify medical personnel and supervisor.

Ingestion

Drink a moderate amount (8-12 oz. or 250 ml) of water and immediately notify medical personnel and supervisor.

Section 5 – Fire Protection

Flammability
As a liquid or solid, not considered flammable.

Extinguishing Media
Use extinguishing media for surrounding fire or contents.

Special Fire Fighting Procedures
Wear full protective clothing and NIOSH/MSHA-approved, positive pressure, self-contained breathing apparatus for surrounding fire or contents. Decontaminate all equipment after use.

Section 6 – Spill and Release Measures

If material is released or spilled, cordon off spill area. Take proper precautions to minimize exposure by using appropriate personal protective equipment. Soak up material with absorbent, e.g., paper towels, and wash spill area thoroughly with soap and water. Dispose of collected material in accordance with applicable waste disposal regulations.

Section 7 – Handling and Storage

Avoid contact with skin, eyes or clothing. Store in a well ventilated area. Wash thoroughly after handling.

Section 8 – Exposure Control/Personal Protection

Eye Protection
Wear safety glasses with side shields for normal handling procedures. For processes with significant aerosolization wear chemical splash goggles, or full face shield, if necessary. Base the choice of protection on the job activity and potential for contact with eyes or face.

Respiratory Protection
Where possible, handle material in enclosed processes or containers. If it is properly handled with effective containment, respiratory protection should not be needed.

Skin Protection
Rubber gloves are recommended to minimize potential for skin contact when handling. When the material is dissolved in an organic solvent, wear gloves that provide protection against the solvent. Wear lab coat or other protective overgarment. Base the choice of protection on the job activity and potential for skin contact.

Engineering Controls
When practicable, handle material in enclosed processes or in processes with effective local exhaust ventilation.

Other
Wash hands, face and other potentially exposed areas immediately after handling material (especially before eating, drinking, or smoking). Decontaminate all protective equipment after use.

Section 9 – Physical/Chemical Properties

Molecular Weight	active ingredient has a MW of about 65,000 daltons
pH (reconstituted) :	approximately 7.3
Boiling Point (°C):	Approximately 100 degrees C when reconstituted
Melting Point	No data available
Vapor Pressure:	No data available
Solubility in Water:	Soluble
Evaporation Rate:	Negligible
Specific Gravity:	Approximately 1 when reconstituted
Vapor Density:	Not Available
Percent Volatile:	Non-volatile
Appearance and Odor:	Powder is white to off-white; reconstituted liquid is colorless, odorless and clear

Section 10 – Stability/Reactivity

Stability:	Stable
Hazardous Polymerization:	Will not occur
Hazardous Decomposition Products:	None
Conditions to Avoid:	There are no special conditions to avoid for safety purposes.

Section 11 – Toxicological Information

See also Section 3.

Reproductive and Developmental Toxicity:
Activase has been shown to have an embryocidal effect in rabbits when intravenously administered in doses of approximately two times (3 mg/kg) the human dose. No maternal or fetal toxicity was evident at 0.65 times (1 mg/kg) the human dose in pregnant rats and rabbits dosed during the period of organogenesis.

Mutagenicity:
Studies to determine mutagenicity (Ames test) and chromosomal aberration assays in human lymphocytes were negative at all concentrations tested. Cytotoxicity, as reflected by a decrease in mitotic index, was evidenced only after prolonged exposure and only at the highest concentrations tested.

Carcinogencity:
No long term studies in laboratory animals. Short-term studies, which evaluated tumorigenicity of Activase and effect on tumor metastases in rodents, were negative.

Section 12 – Environmental Information

Persistence and Degradability
No data available.

Aquatic Toxicity
No data available.

Section 13 – Waste Disposal Methods

All wastes containing the material should be properly labeled. Dispose of any waste residues according to prescribed federal, state, and local guidelines, e.g., appropriately permitted chemical waste incinerator. Rinse waters resulting from spill cleanups should be discharged in an environmentally safe manner, e.g., appropriately permitted municipal or on-site wastewater treatment facility.

Section 14 – Transportation Information

Hazard Class
Not regulated as per U.S. DOT or IATA.

UN Number
Not assigned as per U.S. DOT or IATA.

Section 15 – Labeling/Regulatory Information

Containers of this material should have affixed the following label (in addition to the identity label):

CAUTION. Pharmaceutical product intended for research and development, clinical and manufacturing purposes only. Product contains tissue plasminogen activator. Dosage form contents may pose a health hazard only if exposure occurs to contents, e.g., after spill or leak. Repeated overexposure in manufacturing or from a significant spill may potentially cause effects seen in patients administered the drug such as increased potential for bleeding. Administration of three times the human clinical dose in laboratory animals caused lethality to the embryos of exposed pregnant animals. Avoid inhalation, skin contact, eye contact, and ingestion. Read and understand the Material Safety Data Sheet before handling material.

EUROPEAN UNION (EU) RISK AND SAFETY PHRASES

R63 Possible risk of harm to the unborn child.

CALIFORNIA PROPOSITION 65
Not listed.

Section 16 – Other Information

No additional information.

The above information is offered in good faith and with the belief that it is accurate. As of the date of issuance, we are providing all information relevant to the foreseeable handling of the material. However, in the event of an adverse incident associated with this product, this Material Safety Data Sheet is not, and is not intended to be a substitute for consultation with appropriately trained personnel.

Date of Issue: 8/29/03
Supercedes: 10/17/01 (Changes made include placing into 16-Section format)