US - OSHA SAFETY DATA SHEET

Issue Date 03-Dec-2003 **Revision Date** 20-Feb-2015 **Version** 4

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier
Product Name Firazyr®

Other means of identification
Synonyms Icatibant acetate, icatibant

Recommended use of the chemical and restrictions on use
Recommended Use Treatment for Hereditary Angiodema (HAE).
Uses advised against Unknown

Details of the supplier of the safety data sheet
Manufacturer Address
Shire Human Genetic Therapies
300 Shire Way
Lexington, MA 02421 USA

Emergency telephone number
Company Phone Number 617-349-0200
24 Hour Emergency Phone Number Chemtrec
Within USA and Canada: 1-800-424-9300
Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

2. HAZARDS IDENTIFICATION

Classification

Health Hazards
Not classified.

Physical Hazards
Not classified.

OSHA Regulatory Status
Drugs when in solid final form (e.g. capsules, tablets or pills) are considered exempt under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. However, in an industrial setting where a component's occupational exposure limits may be surpassed, they can be considered hazardous.

Label elements
Not applicable.

Emergency Overview

Appearance Clear or colorless in solution, whitish powder	**Physical state** Liquid or Powder	**Odor** Faint odor of acetic acid

Hazards not otherwise classified (HNOC)
Unknown

Other Information
Unknown

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms Icatibant acetate, icatibant

Chemical Name	CAS No.	Weight-%
Water	231-791-2	90-100
Icatibant acetate	138614-30-9	1-5
Sodium chloride	7647-14-5	0-1
Acetic acid	64-19-7	0.1-1
Sodium hydroxide	1310-73-2	0.01-0.1

4. FIRST AID MEASURES

First aid measures

Eye contact In case of eye contact, immediately flush eyes with fresh water for at least 15 minutes while holding the eyelids open. Remove contact lenses if worn. Get medical attention if irritation persists.

Skin Contact In case of contact, remove contaminated clothing. Immediately flush skin with copious amounts of water for at least 15 minutes. Obtain medical attention if skin reaction occurs.

Inhalation In case of inhalation, remove to fresh air. If not breathing, provide artificial respiration. If breathing is difficult, administer oxygen. Seek medical attention immediately.

Ingestion Firazyr® is provided as a human therapeutic substance intended for subcutaneous administration. In case of unintended ingestion, seek medical attention immediately. Do not induce vomiting unless directed by medical personnel. Never give anything by mouth to an unconscious person.

Self-protection of the first aider Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Most important symptoms and effects, both acute and delayed

Symptoms Unknown

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media Unknown

Specific hazards arising from the chemical
Unknown

Explosion data
Sensitivity to Mechanical Impact Unknown
Sensitivity to Static Discharge Unknown

Protective equipment and precautions for firefighters

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

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation, especially in confined areas.

Environmental precautions

Environmental precautions See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage Conditions When not in use, store at <25°C. Do not freeze. Keep away from ignition sources including electrostatic charge, heat, sparks, and open flame. If aerosols are generated and insufficient ventilation is present, wear suitable respiratory protection. Keep this drug out of the reach of children.

Incompatible materials Unknown

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines This product, as supplied, does not contain any other hazardous materials with occupational exposure limits established by the region specific regulatory.

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH REL
Acetic Acid 64-19-7	STEL: 15 ppm TWA: 10 ppm	TWA: 10 ppm TWA: 25 mg/m^3 (vacated) TWA: 10 ppm (vacated) TWA: 25 mg/m^3	IDLH: 50 ppm TWA: 10 ppm TWA: 25 mg/m^3 STEL: 15 ppm STEL: 37 mg/m^3
Sodium Hydroxide 1310-73-2	Ceiling: 2 mg/m^3	TWA: 2 mg/m^3 (vacated) Ceiling: 2 mg/m^3	IDLH: 10 mg/m^3 Ceiling: 2 mg/m^3

Appropriate engineering controls

Engineering Controls

The health hazard risks of handling this material are dependent on factors, such as physical form and quantity. Site-specific risk assessments should be conducted to determine the appropriate exposure control measures. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels as low as reasonably achievable.

Individual protection measures, such as personal protective equipment

Eye/face protection

None required for consumer use. In laboratory, medical or industrial settings, safety glasses with side shields are recommended. The use of goggles or full face protection may be required depending on the industrial exposure setting. Contact a health and safety professional for specific information.

Skin and body protection

None required for consumer use. In laboratory, medical or industrial settings, gloves and lab coats are recommended. The use of additional personal protective equipment such as shoe coverings, gauntlets, hood or head coverings may be necessary. Contact a health and safety professional for specific information.

Respiratory protection

None required for consumer use. Respirators may be required for certain laboratory and manufacturing tasks if engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (where the exposure limits have not been established). Workplace risk assessments should be completed before specifying and implementing respirator usage. All respirators must conform to specifications for efficiency and performance. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 29 CFR 1910.134. Contact a health and safety professional or manufacturer for specific information.

General Hygiene Considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid Powder		
Appearance	Powder, Liquid	**Odor**	Faint odor of acetic acid
Color	Clear White	**Odor threshold**	Not applicable.

Property	**Values**	**Remarks**
pH	4-7	Not applicable.
Melting point/freezing point	220-270 ^{0}C	Not applicable.
Boiling point / boiling range	Not applicable.	Not applicable.
Flash point	Not applicable.	Not applicable.
Evaporation rate	Not applicable.	Not applicable.
Flammability (solid, gas)	Not applicable.	Not applicable.
Flammability Limit in Air		
Upper flammability limit:	Not applicable.	
Lower flammability limit:	Not applicable.	
Vapor pressure	Not applicable.	Not applicable.
Vapor density	Not applicable.	
Specific Gravity	Not applicable.	Not applicable.
Water solubility	Not applicable.	Not applicable.
Solubility in other solvents	Not applicable.	Not applicable.
Partition coefficient	Not applicable.	Not applicable.
Autoignition temperature	Not applicable.	Not applicable.

Decomposition temperature	>450	Not applicable.
Kinematic viscosity	Not applicable.	Not applicable.
Dynamic viscosity	Not applicable.	Not applicable.
Explosive properties	Not applicable.	
Oxidizing properties	Not applicable.	

Other Information

Softening point	Not applicable.
Molecular weight	Unknown
VOC Content (%)	Not applicable.
Density	Not applicable.
Bulk density	Not applicable.

10. STABILITY AND REACTIVITY

Reactivity
Unknown

Chemical stability
Stable at ambient temperatures and atmospheric pressures under recommended storage and handling conditions.

Possibility of Hazardous Reactions
None under normal processing.

Hazardous polymerization Unknown

Conditions to avoid
Extremes of temperature and direct sunlight.

Incompatible materials
Unknown

Hazardous Decomposition Products
None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information Unknown

Inhalation Unknown

Eye contact Unknown

Skin Contact Unknown

Ingestion Unknown

Acute toxicity Not available.

Acute Effects

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50	Intravenous LD50
Sodium Chloride 7647-14-5	= 3 g/kg (Rat)	> 10 g/kg (Rabbit)	> 42 g/m^3 (Rat) 1 h	-
Acetic Acid 64-19-7	= 3310 mg/kg (Rat)	= 1060 mg/kg (Rabbit)	= 11.4 mg/L (Rat) 4 h	-
Sodium Hydroxide 1310-73-2	= 500 mg/kg (Rabbit)	= 1350 mg/kg (Rabbit)	-	-

Information on toxicological effects

Symptoms Unknown

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Unknown
Serious eye damage/eye irritation Unknown
Irritation Unknown
Corrosivity Unknown
Sensitization Unknown
Germ cell mutagenicity Icatibant: In Ames, in vitro micronucleus, and chromosomal aberration tests, no potential for mutagenicity or genotoxicity was observed.
Carcinogenicity Icatibant is negative for tumor induction in both the rat and mouse 2-year bioassay.

Reproductive toxicity Icatibant: Studies in rats and rabbits showed no effects on postnatal development or male fertility but did show effects on parturition and intrauterine stress. No teratogenic effects were noted.
Developmental Toxicity Unknown
Teratogenicity Icatibant was not teratogenic in rats or rabbits; however, it caused delayed parturition, fetal death, and pre-implantation loss in rats and premature birth, abortion, fetal death, and pre-implantation loss in rabbits.
STOT - single exposure Not classified.
STOT - repeated exposure Not classified.
Chronic toxicity Icatibant: In a 6-month subcutaneous toxicity study in rats dosed daily with 3 mg/kg or higher, effects were observed on the reproductive system and sexual organs, thymus, and adrenal glands; injection site reactions were observed. All of these findings completely or partially reversed in a 4-week dose-free period. In a 9-month subcutaneous toxicity study in dogs dosed daily with 10 mg/kg, effects on the reproductive system were noted; these effects reversed in the 4-week recovery period. The dog study NOAEL was 1 mg/kg.
Target Organ Effects Unknown
Neurological effects Unknown
Other adverse effects Unknown
Aspiration hazard Unknown

Numerical measures of toxicity - Product Information

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Sodium Chloride 7647-14-5	–	5560 - 6080: 96 h Lepomis macrochirus mg/L LC50 flow-through 12946: 96 h Lepomis macrochirus mg/L LC50 static 6020 - 7070: 96 h Pimephales promelas mg/L LC50 static 7050: 96 h Pimephales promelas mg/L LC50 semi-static 6420 - 6700: 96 h Pimephales promelas mg/L LC50 static 4747 - 7824: 96 h Oncorhynchus mykiss mg/L LC50 flow-through	–	1000: 48 h Daphnia magna mg/L EC50 340.7 - 469.2: 48 h Daphnia magna mg/L EC50 Static

Acetic Acid 64-19-7	–	79: 96 h Pimephales promelas mg/L LC50 static 75: 96 h Lepomis macrochirus mg/L LC50 static	–	65: 48 h Daphnia magna mg/L EC50 Static 47: 24 h Daphnia magna mg/L EC50
Sodium Hydroxide 1310-73-2	–	45.4: 96 h Oncorhynchus mykiss mg/L LC50 static	–	–

Persistence and degradability
Not applicable.

Bioaccumulation
Not applicable.

Mobility
Unknown

Chemical Name	Partition coefficient
Acetic Acid 64-19-7	-0.31

Other adverse effects Unknown

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging Disposal should be in accordance with applicable regional, national and local laws and regulations.

Chemical Name	California Hazardous Waste Status
Acetic Acid 64-19-7	Toxic Corrosive Ignitable
Sodium Hydroxide 1310-73-2	Toxic Corrosive

14. TRANSPORT INFORMATION

DOT Not regulated.

ICAO (air) Not regulated.

IATA Not regulated.

IMDG Not regulated.

RID Not regulated.

ADR Not regulated.

15. REGULATORY INFORMATION

International Inventories

TSCA	Does not comply.
DSL/NDSL	Does not comply.
EINECS/ELINCS	Does not comply.
ENCS	Does not comply.
IECSC	Does not comply.
KECL	Does not comply.
PICCS	Does not comply.
AICS	Does not comply.

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute health hazard	No
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

None of the ingredients contained in this product are listed under the Clean Water Act.

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Acetic Acid 64-19-7	5000 lb	–	–	–
Sodium Hydroxide 1310-73-2	1000 lb	–	–	–

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Acetic Acid 64-19-7	5000 lb	–	RQ 5000 lb final RQ RQ 2270 kg final RQ
Sodium Hydroxide 1310-73-2	1000 lb	–	RQ 1000 lb final RQ RQ 454 kg final RQ

US State Regulations

California Proposition 65

This product does not contain any ingredients know to the State of California to cause cancer, developmental, or reproductive harm.

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Acetic Acid 64-19-7	X	X	X
Sodium Hydroxide 1310-73-2	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable.

16. OTHER INFORMATION

Issue Date 03-Dec-2003
Revision Date 20-Feb-2015
Revision Note Sections 1, 2, 3, 4, 8, 11 have been updated.

Disclaimer

Shire Human Genetic Therapies considers that the information contained in this Safety Data Sheet is accurate, and while it is provided in good faith, it is without warranty of any kind, expressed or implied. The information contained herein is designated only as guidance for safe handling, storage and use of the substance and is not a specification nor does it guarantee any specific properties. Only competent personnel, within a controlled environment should handle all chemicals. Shire Human Genetic Therapies shall not be held liable for any loss, injury or damage from contact with the product.

End of Safety Data Sheet