SAFETY DATA SHEET

Revision Date 02-Oct-2018 **Version** 13

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

Product identifier
Product Name Neurotoxin from Organism (Clostridium botulinum) Lyophilized Drug Product

Other means of identification
Product Code FP-66
Synonyms Botox

Recommended use of the chemical and restrictions on use
Recommended Use Acetylcholine release inhibitor and Neuromuscular blocking agent for OAB, Prophylaxis of headaches in adults with chronic migraine, spasticity in adults, cervical dystonia in adults, blepharospasm associated with dystonia, strabismus

This safety data sheet is written to provide health, safety and environmental information for people handling this formulated product in the workplace. It is not intended to provide information relevant to medicinal use of the product. In this instance patients should consult prescribing information/package insert/product label or consult their pharmacist or physician. For health and safety information for individual ingredients used during manufacturing, refer to the appropriate safety data sheet for each ingredient.

Details of the supplier of the safety data sheet
Manufacturer
Allergan plc
5 Giralda Farms
Madison, NJ USA 07940
+1-800-272-5525
E-mail address SDS@Allergan.com

Emergency telephone number
Emergency Telephone Call CHEMTREC Day or Night
Within USA or Canada: 1-800-424-9300
Outside USA and Canada: +1-703-741-5970 (collect calls accepted)

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Reproductive toxicity	Category 2

Label elements

Emergency Overview

Warning

Hazard statements
H361 - Suspected of damaging fertility or the unborn child

The product contains no substances which at their given concentration, are considered to be hazardous to health

Appearance Dehydrated product Contained in a Vial

Physical state Solid

Odor No information available

Chemical Name	**Symptoms**
Botulinum toxin type A	The most common adverse reactions (≥5% and >placebo) are: OAB: urinary tract infection, dysuria, urinary retention; Detrusor Overactivity associated with a neurologic condition: urinary tract infection, urinary retention; Chronic Migraine: neck pain, headache; Spasticity: pain in extremity; Cervical Dystonia: dysphagia, upper respiratory infection, neck pain, headache, increased cough, flu syndrome, back pain, rhinitis; Axillary Hyperhidrosis: injection site pain and hemorrhage, non-axillary sweating, pharyngitis, flu syndrome

Chemical Name	**Medical Conditions Aggravated by Exposure**
Botulinum toxin type A	Hypersensitivity to any botulinum toxin preparation or to any of the components in the formulation, Infection at the proposed injection site, Intradetrusor Injections: Urinary Tract Infection or Urinary Retention

Other Information

Unknown Acute Toxicity 35.7% of the mixture consists of ingredient(s) of unknown toxicity

Over the counter drugs in their solid form are considered exempt under the criteria of the Federal OSHA Hazard Communication Standard 20 CFR 1910.1200. However, in an industrial setting where a component's occupational exposure limit may be surpassed, than can be considered hazardous

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	EINECS	Weight-%
SODIUM CHLORIDE USP	7647-14-5	231-598-3	40 - 70*
Human Serum Albumin	70024-90-7	274-272-6	15 - 40*
Botulinum toxin type A	93384-43-1	297-253-4	<0.1*

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

First aid measures

General advice Immediate medical attention is required.

Eye contact Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. Call a physician immediately.

Skin Contact Immediate medical attention is required. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

Inhalation Immediate medical attention is required. Remove to fresh air. If not breathing, give artificial respiration. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

Ingestion Do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person. Drink plenty of water.

Chemical Name
Botulinum toxin type A

Note to physicians
WARNING: DISTANT SPREAD OF TOXIN EFFECT. The effects of BOTOX and all botulinum toxin products may spread from the area of injection to produce symptoms consistent with botulinum toxin effects. These symptoms have been reported hours to weeks after injection. Swallowing and breathing difficulties can be life threatening and there have been reports of death. The risk of symptoms is probably greatest in children treated for spasticity but symptoms can also occur in adults, particularly in those patients who have an underlying condition that would predispose them to these symptoms. In the event of overdose, antitoxin raised against botulinum toxin is available from the Centers for Disease Control and Prevention (CDC) in Atlanta, GA. However, the antitoxin will not reverse any botulinum toxin-induced effects already apparent by the time of antitoxin administration.

5. FIRE-FIGHTING MEASURES

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

Unsuitable extinguishing media
None known.

Specific hazards arising from the chemical
Fire may produce irritating, corrosive and/or toxic gases.

Explosion data
Sensitivity to Mechanical Impact Not impact sensitive.
Sensitivity to Static Discharge Fine dust dispersed in air, in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Protective equipment and precautions for firefighters
Wear self-contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions Use personal protective equipment as required. Keep people away from and upwind of spill/leak.

Environmental precautions Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. See Section 12 for additional ecological information.

Methods for containment Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up Use personal protective equipment as required. Take up mechanically, placing in appropriate containers for disposal. Avoid creating dust. Clean contaminated surface thoroughly. Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry.

7. HANDLING AND STORAGE

Advice on safe handling Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wash contaminated clothing before reuse. Do not breathe dust/fume/gas/mist/vapors/spray. Do not eat, drink or smoke when using this product.

Storage Conditions Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children.

Incompatible materials None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

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

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH	Allergan OEL (ug/m³)
Botulinum toxin type A 93384-43-1	N/A	N/A	N/A	0.01 ng/m³

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.

Powder Handling Isolator or direct connection with appropriate contained transfer device, and WIP for cleaning (Taped cuffs), displosable or launderable coveralls (Category III equivalent), and booties

Solutions/Suspensions and coated tablet handling (no powders or aerosols) Not Applicable

Packaging (uncoated tablets, hot side work) Appropriate contained transfer device WIP/CIP for the hopper (if possible), and contained ventilated filler

Laboratory Powder Handling or aerosol generation VBSE, BSC or Glove Box

Personal Decontamination Procedure/Controls Required
Unless, In controlled containment: Recommended.

Individual protection measures, such as personal protective equipment

PPE The following high level PPE requirements assume Engineering Controls that reduce exposure below the limit are not in place. More specific requirements may apply

Powder Handling PAPR with full hooded top with max APF and HEPA filter or supplied air, gloves

Solutions/Suspensions and coated tablet handling (no powders or aerosols) Gloves, long sleeved GMP clothing and safety equipment for the area

Packaging (uncoated tablets, hot side work) During cleaning and hopper filler operator - PAPR with full hooded head top with max APF and HEPA filter or supplied air, double gloves (Taped cuffs), disposable or launderable coveralls (Category III equivalent), and booties 1/2 mask, gloves, long sleeved GMP clothing and safety equipment for the area

Laboratory Powder Handling or aerosol generation Minimum lab PPE gloves No controls-controlled area, min lab PPE, gloves and appropriately fitted 1/2 mask for powders

Eye/face protection No eye protection is normally needed during medical administration of this product. During

operations in which dusts of the product may be generated, safety glasses should be considered.

Skin and body protection During medical administration of this product, medical latex or nitrile gloves should be worn to avoid absorption of the product. Use appropriate protective clothing for the task (e.g., lab coat, etc.).

Respiratory protection Respiratory protection is generally not needed during routine conditions of use of this product. If respiratory protection is needed, use only respiratory protection authorized under appropriate regional regulations.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Solid	**Appearance**	Dehydrated product Contained in a Vial
Color	White	**Odor**	No information available
Odor threshold	No information available		

Property	**Values**
pH	No information available
Melting point/freezing point	No information available
Boiling point / boiling range	No information available
Flash point	No information available
Evaporation rate	No information available
Flammability (solid, gas)	No information available
Flammability Limit in Air	
Upper flammability limit:	No information available
Lower flammability limit:	No information available
Vapor pressure	No information available
Vapor density	No information available
Specific Gravity	No information available
Water solubility	No information available
Solubility in other solvents	No information available
Partition coefficient	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Explosive properties	No information available
Oxidizing properties	No information available

Other Information

Molecular weight	No information available
VOC Content (%)	No information available
Density	No information available
Bulk density	No information available

10. STABILITY AND REACTIVITY

Reactivity
Not defined As Reactive substance

Chemical stability
Stable under normal conditions.
Possibility of Hazardous Reactions
None under normal processing.
Conditions to avoid
Aerosol formation.
Incompatible materials

None known based on information supplied.

Hazardous Decomposition Products

None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Acute toxicity

Chemical Name	Inhalation	Eye contact	Skin Contact	Ingestion
Botulinum toxin type A	It is estimated that the lethal oral dose of botulinum toxin is 500 to 700 times greater than the lethal parenteral dose and 77 to 100 timesgreater than the lethal inhalational dose, The human inhalational lethal dose is approximately 0.01ng/kg.	See Symptoms for more information.	The toxins do not penetrate through intact skin.	It is reported that a dose of 1 microgram may be fatal to humans if swallowed. It is estimated that the lethal oral dose of botulinum toxin is 500 to 700 times greater than the lethal parenteral dose, The human oral lethal dose is approximately 1.0 ng/kg.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
SODIUM CHLORIDE USP	= 3000 mg/kg (Rat)	> 10 g/kg (Rabbit)	> 42 g/m³ (Rat) 1 h
Botulinum toxin type A	1 mg/kg	N/A	N/A

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

Chemical Name	Germ cell mutagenicity	Carcinogenicity	Reproductive toxicity	Effects on or via lactation
Botulinum toxin type A	Not mutagenic in the standard battery of tests.	Studies in animals have not been performed to evaluate the carcinogenic potential of BOTOX® and BOTOX® Cosmetic. The product is not structurally related to any known carcinogens. The clinical experience with BOTOX® (Botulinum Toxin Type A) Purified Neurotoxin Complex (100 Units) since 1980 has provided no evidence of carcinogenicity. In addition, in vitro and in vivo mutagenicity and genotoxicity studies showed no carcinogenic potential.	In fertility studies of BOTOX (4, 8, or 16 Units/kg) in which either male or female rats were injected intramuscularly prior to mating and on the day of mating (3 doses, 2 weeks apart for males, 2 doses, 2 weeks apart for females) to untreated animals, reduced fertility was observed in males at the intermediate and high doses and in females at the high dose. The no-effect doses for reproductive toxicity (4 Units/kg in males, 8 Units/kg in females) are approximately equal to the maximum recommended human dose of 400 Units on a body weight basis (Units/kg).	It is not known whether the drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when this drug is administered to nursing mothers.

Chemical Name	STOT - single exposure	STOT - repeated exposure
Botulinum toxin type A	It has been estimated that the human LD 50 by injection is approximately 80 to 560 ng (equivalent to 2800 mouse units, depending on the specific potency of the toxin) for a 70 kg adult. The LD50 values ranged from 50-57 units per kilogram via IV and 71 to 143 units per KG via IM in rats. NOEL in monkeys ranged from 4 to 24 units per KG via IM.	No information available.

Chronic toxicity Prolonged or repeated exposure increases the risk. Possible risk of irreversible effects.

Target Organ Effects Respiratory system, Musculo-skeletal system.

Numerical measures of toxicity - Product Information

Unknown Acute Toxicity 35.7% of the mixture consists of ingredient(s) of unknown toxicity

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 3000 mg/kg

ATEmix (dermal) 10010 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity

35.7% of the mixture consists of components(s) of unknown hazards to the aquatic environment

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

Chemical Name	Persistence and degradability	Bioaccumulation	Mobility	Partition coefficient
Botulinum toxin type A 93384-43-1	Stable in solution for up to 7 days when protected from heat and/or light ... destroyed by heat and decomposes when exposed to air for more than 12 hours	N/A	N/A	N/A

Other adverse effects No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes Denatured solutions may be released to the sanitary sewer system if allowed by local authorities. Other decontaminated material (i.e. wipedown cloths, etc.) may be discarded with routine waste. Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging Decontamination with 1N NaOH solution with contact time of 20 minutes or 10% hypochlorite solution for 10 minutes. Disposal should be in accordance with applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION

DOT Not regulated

TDG Not regulated

ICAO (air) Not regulated

IATA Not regulated

IMDG Not regulated

ADR Not regulated

ADN Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA	Not Listed
DSL/NDSL	Not Listed
EINECS/ELINCS	Listed

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

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	Yes
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

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

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

16. OTHER INFORMATION

Revision Date	02-Oct-2018
Revision Note	No information available

Disclaimer
The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet