SAFETY DATA SHEET

1. Identification

Product identifier **TRELEGY ELLIPTA**

Other means of identification

Synonyms ELEBRATO ELLIPTA * FLUTICASONE FUROATE, UMECLIDINIUM BROMIDE, AND VILANTEROL TRIFENATATE, FORMULATED PRODUCT

Recommended use Medicinal Product.

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.

Recommended restrictions No other uses are advised.

Manufacturer/Importer/Supplier/Distributor information

COMPANY NAME GlaxoSmithKline US

Address: 5 Moore Drive
Research Triangle Park, NC 27709 USA

Telephone: +1-888-825-5249 (General Inquiries)

Email: msds@gsk.com

Website: www.gsk.com

EMERGENCY CONTACTS

CHEMTREC EMERGENCY NUMBERS

Telephone: +(1) 703 527 3887 (International)
24/7; multi-language response

Contract Number: CCN9484

VERISK 3E GLOBAL INCIDENT RESPONSE

Telephone: +(1) 760 476 3971 (In country)
+(1) 760 476 3962 or +(1) 866 519 4752 (International)
24/7; multi-language response

Contract Number: 334878

2. Hazard(s) identification

Classified hazards

Exempt from requirements - product regulated as a medicinal product, cosmetic product or medical device.

Label elements

Exempt from requirements - product regulated as a medicinal product, cosmetic product or medical device.

Hazard(s) not otherwise classified (HNOC)

Exempt from requirements - product regulated as a medicinal product, cosmetic product or medical device.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
LACTOSE, MONOHYDRATE	D-LACTOSE LACTOSE MONOHYDRATE NF ALPHA-LACTOSE A-LACTOSE MILK SUGAR LACTOHALE 200 ALPHA-LACTOSE MONOHYDRATE	64044-51-5	> 96

Chemical name	Common name and synonyms	CAS number	%
FLUTICASONE FUROATE	GW685698X FURAN-2-CARBOXYLIC ACID 6,9-DIFLUORO-17-FLUOROMETHYLSULFANYLCARBONYL-11-HYDROXY-10,13,16-TRIMETHYL-3-OXO-6,7,8,9,10,11,12,13,14,15,16,17-DODECAHYDRO-3H-CYCLOPENTA(A)PHENANTHREN-17-YL ESTER (6ALPHA,11BETA,16ALPHA,17ALPHA)-6,9-DIFLUORO-17-{[(FLUOROMETHYL)THIO]CARBONYL}-11-HYDROXY-16-METHYL-3-OXOANDROSTA-1,4-DIEN-17-YL 2-FURANCARBOXYLATE	397864-44-7	0.8
MAGNESIUM STEARATE	STEARIC ACID, MAGNESIUM SALT MAGNESIUM DISTEARATE DIBASIC MAGNESIUM STEARATE MAGNESIUM DISTEARATE, PURE	557-04-0	0.6
UMECLIDINIUM BROMIDE	4-[HYDROXY(DIPHENYL)METHYL]-1-{2-[(PHENYLMETHYL)OXY]ETHYL}-1-AZONIABICYCLO[2.2.2]OCTANE BROMIDE GSK573719A	869113-09-7	0.59
VILANTEROL TRIPHENYLACETIC ACID SALT	VILANTEROL TRIFENATATE (ALPHA1-R)-ALPHA1-[[[6-[2-[(2,6-DICHLOROPHENYL)METHOXY]ETHOXY] HEXYL] AMINO]METHYL]-4-HYDROXY-1,3-BENZENEDIMETHANOL, TRIPHENYLACETIC ACID SALT GW642444 TRIPHENYLACETIC ACID SALT GW642444M	503070-58-4	0.32

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation Move to fresh air. If breathing is difficult, trained personnel should give oxygen. Call a physician if symptoms develop or persist. Under normal conditions of intended use, this material is not expected to be an inhalation hazard.

Skin contact Immediately flush skin with plenty of water. Take off contaminated clothing and wash before reuse. Get medical attention if symptoms occur.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Ingestion If swallowed, rinse mouth with water (only if the person is conscious). If ingestion of a large amount does occur, call a poison control center immediately. Do not induce vomiting without advice from poison control center.

Most important symptoms/effects, acute and delayed The following adverse effects have been noted with therapeutic use of this material: Headache. Diarrhea. back pain, gastrointestinal distress. Coughing.

Indication of immediate medical attention and special treatment needed No specific antidotes are recommended. Treat according to locally accepted protocols. For additional guidance, refer to the current prescribing information or to the local poison control information center.

General information In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Water. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media None known.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions	Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Avoid the generation of dusts during clean-up. Collect dust using a vacuum cleaner equipped with HEPA filter. Prevent product from entering drains. Stop the flow of material, if this is without risk. Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Following product recovery, flush area with water. Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Minimize dust generation and accumulation. Provide appropriate exhaust ventilation at places where dust is formed. Avoid prolonged exposure. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

GSK

Components	Type	Value	Note
FLUTICASONE FUROATE (CAS 397864-44-7)	8 HR TWA	6 mcg/m3	REPRODUCTIVE HAZARD, SKIN
	OHC	4	REPRODUCTIVE HAZARD, SKIN
	PDE	20 µg/day	(50kg person)
LACTOSE, MONOHYDRATE (CAS 64044-51-5)	OHC	1	>1000 - </=5000 mcg/m3 PROVISIONAL
UMECLIDINIUM BROMIDE (CAS 869113-09-7)	8 HR TWA	2 mcg/m3	
	Environmental PDE	100 µg/day	
	OHC	4	
	PDE	20 µg/day	(50kg person)
VILANTEROL TRIPHENYLACETIC ACID SALT (CAS 503070-58-4)	15 MIN STEL	20 mcg/m3	
	8 HR TWA	2 mcg/m3	
	OHC	4	
	PDE	5 µg/day	(50kg person)

US. ACGIH Threshold Limit Values

Components	Type	Value
MAGNESIUM STEARATE (CAS 557-04-0)	TWA	10 mg/m3

Biological limit values	No biological exposure limits noted for the ingredient(s).
Exposure guidelines	

Appropriate engineering controls	General ventilation normally adequate.

Individual protection measures, such as personal protective equipment

Eye/face protection	Not normally needed. If contact is likely, safety glasses with side shields are recommended.
Skin protection	
Hand protection	Not normally needed. For prolonged or repeated skin contact use suitable protective gloves.
Other	Not normally needed. Wear suitable protective clothing as protection against splashing or contamination.
Respiratory protection	No personal respiratory protective equipment normally required. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
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. For advice on suitable monitoring methods, seek guidance from a qualified environment, health and safety professional.

9. Physical and chemical properties

Appearance	
Physical state	Solid.
Form	Powder.Inhaler.Coiled blister strip.
Color	Not available.
Odor	Not available.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.

Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	None known. Irritating and/or toxic fumes and gases may be emitted upon the product's decomposition.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Under normal conditions of intended use, this material is not expected to be an inhalation hazard.
Skin contact	Health injuries are not known or expected under normal use.
Eye contact	Health injuries are not known or expected under normal use.
Ingestion	Health injuries are not known or expected under normal use.
Symptoms related to the physical, chemical and toxicological characteristics	The following adverse effects have been noted with therapeutic use of this material: Headache. back pain, gastrointestinal distress. Diarrhea. Coughing.

Information on toxicological effects

Acute toxicity Health injuries are not known or expected under normal use.

Components	Species	Test Results
FLUTICASONE FUROATE (CAS 397864-44-7)		
Acute		
Inhalation		
LCLo	Rat	> 0.133 mg/l
Oral		
LD50	Mouse	> 2000 mg/kg
	Rat	> 2000 mg/kg
Subacute		
Inhalation		
LOEL	Dog	<= 9 mg/kg/day, 4 weeks Pharmacological effects
	Rat	<= 6.9 mg/kg/day, 4 weeks Pharmacological effects
Subchronic		
Inhalation		
LOEL	Dog	<= 13 mcg/kg/day, 39 weeks Pharmacological effects
	Rat	<= 20 mcg/kg/day, 26 weeks Pharmacological effects
LACTOSE, MONOHYDRATE (CAS 64044-51-5)		
Acute		
Oral		
LD50	Rat	> 10 g/kg
MAGNESIUM STEARATE (CAS 557-04-0)		
Acute		
Oral		
LD50	Rat	> 2000 mg/kg
UMECLIDINIUM BROMIDE (CAS 869113-09-7)		
Acute		
Oral		
LD	Mouse	1000 mg/kg, 3 Day
Subacute		
Oral		
LD	Rat	> 300 mg/kg/day, 14 Day

Components	Species	Test Results
NOAEL	Rat	> 100 mg/kg/day, 14 Day
Subchronic		
Inhalation		
NOAEL	Dog	109 mcg/kg/day, 39 weeks
	Mouse	5 mcg/L/day, 13 weeks
	Rat	87.1 mcg/kg/day, 26 weeks
Oral		
NOAEL	Mouse	3 mg/kg/day, 13 weeks
VILANTEROL TRIPHENYLACETIC ACID SALT (CAS 503070-58-4)		
Acute		
Oral		
LD		> 300 mg/kg
Subchronic		
Inhalation		
NOAEL	Dog	62.5 mcg/kg/day, 39 weeks heart, respiratory tract irritation
		9.3 mcg/kg/day, 13 weeks heart, respiratory tract irritation
	Mouse	38200 mcg/kg/day, 13 weeks clinical signs, mortality
	Rat	658 mcg/kg/day, 13 weeks respiratory tract irritation
		58 mcg/kg/day, 26 weeks respiratory tract irritation
NOEL	Dog	< 9.3 mcg/kg/day, 13 weeks adrenergic effects
		< 9.55 mcg/kg/day, 39 weeks adrenergic effects
	Mouse	< 59 mcg/kg/day, 13 weeks adrenergic effects
	Rat	< 56 mcg/kg/day, 13 weeks adrenergic effects
		< 58 mcg/kg/day, 26 weeks adrenergic effects

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Health injuries are not known or expected under normal use.

Corrosivity

FLUTICASONE FUROATE	OECD 404 Result: Negative Species: Rabbit
UMECLIDINIUM BROMIDE	Reconstituted Human Epidermis Result: Mild
VILANTEROL TRIPHENYLACETIC ACID SALT	Reconstituted Human Epidermis Result: Negative

Irritation Corrosion - Skin: P.I.I. value

MAGNESIUM STEARATE	0

Serious eye damage/eye irritation Health injuries are not known or expected under normal use.

Eye

FLUTICASONE FUROATE	0.05 % Acute Occular irritation Result: Negative Species: Rabbit Read across, Read across, Fluticasone propionate Result: Negative Species: Rabbit

Eye

UMECLIDINIUM BROMIDE	Reconstituted Human Corneal Epithelium (HCE) Result: Mild
VILANTEROL TRIPHENYLACETIC ACID SALT	Reconstituted Human Corneal Epithelium (HCE) Result: Negative

Eye / Kay and Calandra class - Intact

MAGNESIUM STEARATE	4 Recovery Period: 2 days

Respiratory or skin sensitization

Respiratory sensitization Health injuries are not known or expected under normal use.

Skin sensitization Health injuries are not known or expected under normal use.

Sensitization

VILANTEROL TRIPHENYLACETIC ACID SALT	50 % OECD 429, Vehicle - Dimethyl formamide Result: Negative
UMECLIDINIUM BROMIDE	Local lymph node assay, Vehicle - Propylene glycol Result: Negative Species: Mouse
FLUTICASONE FUROATE	Read across, Fluticasone propionate Result: Negative Species: Guinea pig

Germ cell mutagenicity Health injuries are not known or expected under normal use.

Mutagenicity

FLUTICASONE FUROATE	Ames Result: Negative
UMECLIDINIUM BROMIDE	Ames Result: Negative
VILANTEROL TRIPHENYLACETIC ACID SALT	Ames Result: Negative bacterial mutation assay (high throughput fluctuation test), GW642444H Result: Negative
FLUTICASONE FUROATE	Chromosomal aberration assay Result: Negative
UMECLIDINIUM BROMIDE	L5178Y mouse lymphoma thymidine kinase locus assay Result: Negative
VILANTEROL TRIPHENYLACETIC ACID SALT	L5178Y mouse lymphoma thymidine kinase locus assay, GW642444H Result: Negative L5178Y mouse lymphoma thymidine kinase locus assay, GW642444H, DNA damage occurred only at cytotoxic concentrations. Result: Positive Micronucleus Assay Result: Negative
FLUTICASONE FUROATE	Mouse Lymphoma Cell (L5178Y) Assay Result: Negative
UMECLIDINIUM BROMIDE	Mouse micronucleus test Result: Negative
FLUTICASONE FUROATE	Rat Micronucleus Assay Result: Negative
VILANTEROL TRIPHENYLACETIC ACID SALT	Rat UDS assay, GW642444H Result: Negative Syrian Hamster Embryo (SHE) cell transformation assay, GW642444H Result: Negative

Carcinogenicity Carcinogenic effects are not expected as a result of occupational exposure.

VILANTEROL TRIPHENYLACETIC ACID SALT	> 10.5 mcg/kg/day ICH S1B - Inhalation, NOAEL Result: Negative Species: Rat Test Duration: 104 weeks > 6.4 mcg/kg/day ICH S1B - Inhalation, NOAEL Result: Negative Species: Mouse Test Duration: 104 weeks

Carcinogenicity

VILANTEROL TRIPHENYLACETIC ACID SALT	> 62 mcg/kg/day ICH S1B - Inhalation, Species-specific Result: Positive Species: Mouse Organ: Uterus/ Ovary Test Duration: 104 weeks > 84.4 mcg/kg/day ICH S1B - Inhalation, Species-specific Result: Positive Species: Rat Organ: Pituitary/ Ovary Test Duration: 104 weeks
FLUTICASONE FUROATE	ICH S1B - Inhalation Result: Negative Species: Mouse
UMECLIDINIUM BROMIDE	ICH S1B - Inhalation Result: Negative Species: Mouse Test Duration: 104 weeks
FLUTICASONE FUROATE	ICH S1B - Inhalation Result: Negative Species: Rat
UMECLIDINIUM BROMIDE	ICH S1B - Inhalation Result: Negative Species: Rat Test Duration: 104 weeks

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity

Health injuries are not known or expected under normal use. Components in this product have been shown to cause birth defects and reproductive disorders in laboratory animals. These effects are linked only to high doses of this substance; low doses did not produce this adverse effect.

Reproductivity

VILANTEROL TRIPHENYLACETIC ACID SALT	> 33700 mcg/kg/day Embryo-foetal development Species: Rat
FLUTICASONE FUROATE	>= 47 mcg/kg/day Embryofetal Development Result: Maternal weight loss/ Foetal abortion Species: Rabbit
VILANTEROL TRIPHENYLACETIC ACID SALT	10000 mcg/kg/day Pre- and Post-natal development Result: No developmental effects observed. Species: Rat
FLUTICASONE FUROATE	23 mcg/kg/day Embryofetal Development Result: NOAEL Species: Rat
UMECLIDINIUM BROMIDE	278 mcg/kg/day S5(R2) - Inhalation, NOAEL Result: Negative Species: Rat
VILANTEROL TRIPHENYLACETIC ACID SALT	30 mcg/kg/day Embryo-foetal development, sub-cutaneous administration Result: NOAEL Species: Rabbit 300 mcg/kg/day Embryo-foetal development, sub-cutaneous administration Species: Rabbit Organ: open eye 300 mcg/kg/day Embryo-foetal development, sub-cutaneous administration Species: Rabbit Organ: Skeletal effects
UMECLIDINIUM BROMIDE	306 mcg/kg/day S5(R2) - Inhalation, NOAEL Result: Negative Species: Rabbit

Reproductivity

VILANTEROL TRIPHENYLACETIC ACID SALT	33700 mcg/kg/day Fertility, Male Result: No adverse effects on fertility. Species: Rat 37112 mcg/kg/day Fertility, Female Result: No adverse effects on fertility. Species: Rat
FLUTICASONE FUROATE	8 mcg/kg/day Embryofetal Development Result: NOAEL Species: Rabbit 91 mcg/kg/day Female Fertility / Early Embryonic Development Result: reduced foetal bodyweight, minor skeletal variations Species: Rat Male Fertility Result: No effect Species: Rat

Specific target organ toxicity - single exposure Not assigned.

Specific target organ toxicity - repeated exposure Not assigned.

FLUTICASONE FUROATE	Read across, Glucocorticoid Organ: Adrenals, Immune system, Bone, Eyes

Aspiration hazard Not an aspiration hazard.

Chronic effects Prolonged inhalation may be harmful.

Further information Caution - Pharmaceutical agent. Occupational exposure to the substance or mixture may cause adverse effects.

12. Ecological information

Ecotoxicity Contains a substance which causes risk of hazardous effects to the environment.

Components		Species	Test Results
FLUTICASONE FUROATE (CAS 397864-44-7)			
Aquatic			
Acute			
Activated Sludge Respiration	IC50	Residential sludge	> 1000 mg/l, 3 hours Nominal, OECD 209
	NOEC	Residential sludge	1000, 3 hours Nominal
Crustacea	EC50	Water flea (Daphnia magna)	> 4.2 mg/l, 48 hours Static renewal test, OECD 202
	NOEC	Water flea (Daphnia magna)	4.2 mg/l, 48 hours Static renewal test
Chronic			
Fish	Growth test LOEC	Fathead minnow (Juvenile Pimephales promelas)	> 0.0006 mg/l, 118 days Measured, OECD 210/234
	Growth test NOEC	Fathead minnow (Juvenile Pimephales promelas)	0.0006 mg/l, 118 days
Terrestrial			
Acute			
Earthworm	EC50	Manure worm (Eisenia foetida)	> 1000 mg/kg, 14 days Measured, OECD 207
	NOEC	Manure worm (Eisenia foetida)	1000 mg/kg, 14 days
MAGNESIUM STEARATE (CAS 557-04-0)			
Aquatic			
Acute			
Fish	EC50	Orange-red killfish (Adult Oryzias latipes)	130 mg/l, 96 hours

Components		Species	Test Results
UMECLIDINIUM BROMIDE (CAS 869113-09-7)			
Aquatic			
Acute			
Algae	EC50	Green algae (Pseudokirchnereilla subcapitata)	0.3 mg/l, 72 hours Nominal
	NOEC	Green algae (Pseudokirchnereilla subcapitata)	0.074 mg/l, 72 hours
Chronic			
Crustacea	LOEC	Water flea (Daphnia magna)	11.86 mg/l, 21 days nominal
	NOEC	Water flea (Daphnia magna)	3.8 mg/l, 21 days
Fish	Growth test LOEC	Fathead minnow (Juvenile Pimephales promelas)	1.11 mg/l, 28 days Nominal
	Growth test NOEC	Fathead minnow (Juvenile Pimephales promelas)	0.37 mg/l, 28 days
VILANTEROL TRIPHENYLACETIC ACID SALT (CAS 503070-58-4)			
Aquatic			
Acute			
Algae	EC50	Green algae (Pseudokirchnereilla subcapitata)	1.33 mg/l, 72 hours Nominal
	NOEC	Algae	0.139 mg/l, 72 hours
Chronic			
Crustacea	LOEC	Water flea (Daphnia magna)	18.25 mg/l, 21 days semi-static test conditions
	NOEC	Daphnia	9.125 mg/l, 21 days
Fish	Growth test LOEC	Fathead minnow (Juvenile Pimephales promelas)	1.62 mg/l, 28 days Nominal
	Growth test NOEC	Fish	0.54 mg/l, 28 days

* Estimates for product may be based on additional component data not shown.

Persistence and degradability

Photolysis

Half-life (Photolysis-atmospheric)

MAGNESIUM STEARATE	17 Hours Estimated

UV/visible spectrum wavelength

MAGNESIUM STEARATE	210 nm

Biodegradability

Percent degradation (Aerobic biodegradation-inherent)

FLUTICASONE FUROATE	0 %, 28 days Modified MITI (II) Test., Activated sludge
MAGNESIUM STEARATE	77 %, 28 days BOD

Percent degradation (Aerobic biodegradation-ready)

MAGNESIUM STEARATE	95 %, 22 days Sturm test

Percent degradation (Aerobic biodegradation-soil)

FLUTICASONE FUROATE	2 - 3 %, 64 days, Soil
MAGNESIUM STEARATE	50 %, 13 days

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

FLUTICASONE FUROATE	2.61 (Measured).
UMECLIDINIUM BROMIDE	1.26 (measured)
VILANTEROL TRIPHENYLACETIC ACID SALT	1.39

Bioconcentration factor (BCF)

MAGNESIUM STEARATE	> 9999 Estimated

Mobility in soil

Adsorption

Soil/sediment sorption - log Koc

FLUTICASONE FUROATE	3.6 - 4.2 Measured
LACTOSE, MONOHYDRATE	1 Calculated
MAGNESIUM STEARATE	5.86 Estimated

Mobility in general

Volatility

Henry's law

LACTOSE, MONOHYDRATE	< 0 atm m3/mol Calculated

Distribution

Octanol/water distribution coefficient log DOW

VILANTEROL TRIPHENYLACETIC ACID SALT	0.09 Measured., pH 5 1.35 Measured., pH 7 1.39 Measured., pH 9

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not discharge into drains, water courses or onto the ground. Dispose in accordance with all applicable regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). Avoid discharge into water courses or onto the ground.

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

Not regulated as a dangerous good.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

US federal regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)
Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 04-03-2018

Version # 01

Further information HMIS® is a registered trade and service mark of the NPCA.

HMIS® ratings
Health: 2
Flammability: 0
Physical hazard: 0

NFPA ratings
Health: 2
Flammability: 0
Instability: 0

References GSK Hazard Determination

Disclaimer The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create any warranty, express or implied. It is the responsibility of the user to determine the applicability of this information and the suitability of the material or product for any particular purpose.