SAFETY DATA SHEET

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

1.1. Product identifier

Trade name or designation of the mixture	ANORO ELLIPTA FORMULATED PRODUCT
Registration number	-
Synonyms	GW642444M, FORMULATED PRODUCT * GSK573719A, FORMULATED PRODUCT
Issue date	14-June-2013
Version number	01

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses	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.
Uses advised against	No other uses are advised.

1.3. Details of the supplier of the safety data sheet

GlaxoSmithKline UK
980 Great West Road
Brentford, Middlesex TW8 9GS UK
UK General Information (normal business hours): +44-20-8047-5000
Email Address: msds@gsk.com
Website: www.gsk.com

1.4. Emergency telephone number

TRANSPORT EMERGENCIES::
UK In-country toll call: +(44)-870-8200418
International toll call: +1 703 527 3887
available 24 hrs/7 days; multi-language response

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Directive 67/548/EEC or 1999/45/EC as amended

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

Classification according to Regulation (EC) No 1272/2008 as amended

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

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

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

Supplemental label information Not applicable.

2.3. Other hazards Caution - Pharmaceutical agent.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
GSK573719A	0.5 - 1.0	869113-09-7 -	-	-	

Classification: **DSD:** Xn;R20/22, N;R50

CLP: Acute Tox. 4;H302, Acute Tox. 4;H332, Aquatic Acute 1;H400, Aquatic Chronic 2;H411

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
GW642444M	0.2	503070-58-4 -	-	-	

Classification: **DSD:** N;R51/53

CLP: STOT RE 2;H373, Aquatic Chronic 2;H411

Other components below reportable levels >98.0

CLP: Regulation No. 1272/2008.
DSD: Directive 67/548/EEC.
M: M-factor
vPvB: very persistent and very bioaccumulative substance.
PBT: persistent, bioaccumulative and toxic substance.
#: This substance has been assigned Community workplace exposure limit(s).

Composition comments The full text for all R- and H-phrases is displayed in section 16.

SECTION 4: First aid measures

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Pre-placement and periodic health surveillance is not usually indicated. The final determination of the need for health surveillance should be determined by local risk assessment.

4.1. Description of first aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention immediately.

Skin contact Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Remove and isolate contaminated clothing and shoes. Get medical attention immediately.

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

Ingestion Call a physician or poison control centre immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconsious person.

4.2. Most important symptoms and effects, both acute and delayed Direct contact with eyes may cause temporary irritation.
The following adverse effects have been noted with therapeutic use of this material: headache; fine muscle tremors; increased heart rate; increased blood pressure; changes in clinical chemistry parameters; joint pain; muscle cramps; inflamed nasal cavity; coughing; dry mouth.

4.3. Indication of any immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed. No specific antidotes are recommended. Treat according to locally accepted protocols. For additional guidance, refer to the local poison control information centre.

SECTION 5: Firefighting measures

General fire hazards No unusual fire or explosion hazards noted.

5.1. Extinguishing media

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO_2).

Unsuitable extinguishing media None known.

5.2. Special hazards arising from the substance or mixture During fire, gases hazardous to health may be formed.

5.3. Advice for firefighters

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

Special fire fighting procedures In the event of fire, cool tanks with water spray.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate personal protective equipment. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8.
For emergency responders	Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the MSDS.
6.2. Environmental precautions	Avoid discharge into drains, water courses or onto the ground.
6.3. Methods and material for containment and cleaning up	Stop the flow of material, if this is without risk. Following product recovery, flush area with water.
6.4. Reference to other sections	For personal protection, see section 8. For waste disposal, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling	Minimise dust generation and accumulation. Do not taste or swallow. Avoid breathing dust. Avoid prolonged exposure. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling.
7.2. Conditions for safe storage, including any incompatibilities	Store in original tightly closed container. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the MSDS).
7.3. Specific end use(s)	Medicinal Product

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

GSK

Components	Type	Value	Note
GSK573719A (CAS 869113-09-7)	8 HR TWA	8 mcg/m3	
	OHC	4	-
GW642444M (CAS 503070-58-4)	15 MIN STEL	20 mcg/m3	
	8 HR TWA	2 mcg/m3	
	ADE	5 µg/day	
	OHC	4	

Biological limit values	No biological exposure limits noted for the ingredient(s).
Recommended monitoring procedures	Follow standard monitoring procedures.
Derived No Effect Level (DNEL)	Not available.
Predicted no effect concentrations (PNECs)	Not available.

8.2. Exposure controls

Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) 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 to an acceptable level. An Exposure Control Approach (ECA) is established for operations involving this material based upon the OEL/Occupational Hazard Category and the outcome of a site- or operation-specific risk assessment.

Individual protection measures, such as personal protective equipment

General information	Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment. Follow all local regulations if personal protective equipment (PPE) is used in the workplace.
Eye/face protection	Wear safety glasses with side shields (or goggles). Wear a full-face respirator, if needed. (eg. EN 166)
Skin protection	
- Hand protection	The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Glove selection must take into account any solvents and other hazards present. With respect to the above precautions select suitable chemical resistant protective gloves (EN 374) with a protective index 6 (>480min permeation time).

- Other	Not normally needed.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
Hygiene measures	When using, do not eat, drink or smoke. Wash hands after handling and before eating. An occupational/industrial hygiene monitoring method has been developed for this material. For advice on suitable monitoring methods, seek guidance from a qualified environment, health and safety professional.
Environmental exposure controls	
Hazard guidance and control recommendations	Environmental manager must be informed of all major releases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	
Physical state	Solid.
Form	Coiled blister strip.
Colour	Not available.
Odour	Not available.
Odour 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.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	Not available.
Solubility(ies)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Explosive properties	Not available.
Oxidizing properties	Not available.
9.2. Other information	No relevant additional information available.

SECTION 10: Stability and reactivity

10.1. Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
10.2. Chemical stability	Material is stable under normal conditions.
10.3. Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
10.4. Conditions to avoid	Contact with incompatible materials.
10.5. Incompatible materials	Strong oxidising agents.
10.6. Hazardous decomposition products	Irritating and/or toxic fumes and gases may be emitted upon the products decomposition.

SECTION 11: Toxicological information

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

Information on likely routes of exposure

Ingestion May be harmful if swallowed.

Inhalation Health injuries are not known or expected under normal use.

Skin contact None known. Health injuries are not known or expected under normal use.

Eye contact Direct contact with eyes may cause temporary irritation.

Symptoms The following adverse effects have been noted with therapeutic use of this material: headache; fine muscle tremors; increased heart rate; changes in clinical chemistry parameters; joint pain; malaise; muscle cramps; inflamed nasal cavity; dry mouth.

11.1. Information on toxicological effects

Acute toxicity May be harmful if swallowed.

Components	Species	Test results
GSK573719A (CAS 869113-09-7)		
Acute		
Oral		
LD	Mouse	1000 mg/kg, 3 Day
Subacute		
Oral		
LD	Rat	> 300 mg/kg/day, 14 Day
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
GW642444M (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

Components	Species	Test results
		< 58 mcg/kg/day, 26 weeks, adrenergic effects

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

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.

Corrosivity

GSK573719A	Reconstituted Human Epidermis Result: Mild
GW642444M	Reconstituted Human Epidermis Result: negative

Serious eye damage/eye irritation Direct contact with eyes may cause temporary irritation.

Eye

GSK573719A	Reconstituted Human Corneal Epithelium (HCE) Result: Mild
GW642444M	Reconstituted Human Corneal Epithelium (HCE) Result: negative

Respiratory sensitisation None known.

Skin sensitisation This product is not expected to cause skin sensitization.

Sensitisation

GW642444M	50 % OECD 429, Vehicle - Dimethyl formamide Result: negative
GSK573719A	Local lymph node assay, Vehicle - Propylene glycol Result: negative Species: Mouse

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Germ cell mutagenicity

Germ cell mutagenicity: Ames test

GW642444M	ICH S 2 (R1) Result: negative

Germ cell mutagenicity: Micronucleus

GW642444M	ICH S 2 (R1) Result: negative

Mutagenicity

GSK573719A	Ames Result: negative L5178Y mouse lymphoma thymidine kinase locus assay Result: negative
GW642444M	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
GSK573719A	Mouse micronucleus test Result: negative
GW642444M	Rat UDS assay, GW642444H Result: negative Syrian Hamster Embryo (SHE) cell transformation assay, GW642444H Result: negative bacterial mutation assay (high throughput fluctuation test), GW642444H Result: negative

Carcinogenicity

GW642444M	> 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

GW642444M	> 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
GSK573719A	ICH S1B - Inhalation Result: negative Species: Mouse Test Duration: 104 weeks ICH S1B - Inhalation Result: negative Species: Rat Test Duration: 104 weeks

Reproductive toxicity Components in this product have been shown to cause birth defects and reproductive disorders in laboratory animals.

Reproductive toxicity

Developmental effects

GSK573719A	278 mcg/kg/day S5(R2) - Inhalation, NOAEL Result: negative Species: Rat
GW642444M	30 mcg/kg/day S5(R2) Sub-cutaneous, NOAEL Result: negative Species: Rabbit 300 mcg/kg/day S5(R2) Sub-cutaneous Result: positive Species: Rabbit Organ: Eye 300 mcg/kg/day S5(R2) Sub-cutaneous Result: positive Species: Rabbit Organ: Skeleton
GSK573719A	306 mcg/kg/day S5(R2) - Inhalation, NOAEL Result: negative Species: Rabbit
GW642444M	> 33700 mcg/kg/day S5(R2) Result: negative Species: Rat

Fertility effects - Females

GW642444M	> 10000 mcg/kg/day ICH S5(R2) Pre- and post-natal, oral Result: negative Species: Rat > 37112 mcg/kg/day ICH S5(R2), Inhalation Result: negative Species: Rat

Fertility effects - Males

GW642444M	> 33700 mcg/kg/day ICH S5(R2), Inhalation Result: negative Species: Rat

Specific target organ toxicity - single exposure Heart.

Specific target organ toxicity - repeated exposure Heart.

Aspiration hazard None known.

Mixture versus substance information None known.

Other information None known.

SECTION 12: Ecological information

12.1. Toxicity

Components		Species	Test results
GSK573719A (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
GW642444M (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.

12.2. Persistence and degradability No data is available on the degradability of this product.

12.3. Bioaccumulative potential

Partition coefficient n-octanol/water (log Kow)

GSK573719A	1.26 (measured)
GW642444M	1.39

12.4. Mobility in soil

Mobility in general

Distribution

Octanol/water distribution coefficient log DOW

GW642444M	0.09 Measured., pH 5
	1.35 Measured., pH 7
	1.39 Measured., pH 9

12.5. Results of PBT and vPvB assessment Not available.

12.6. Other adverse effects Not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste 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).

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

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

Disposal methods/information Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Special precautions Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code MARPOL Annex II applies to liquids used in a ship's operation that pose a threat to the marine environment. These materials may not be transported in bulk.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I

Not listed.

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex II

Not listed.

Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1 as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2 as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3 as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(1) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Not listed.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work

Not listed.

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding

Not listed.

Other EU regulations

Directive 96/82/EC (Seveso II) on the control of major-accident hazards involving dangerous substances

Not listed.

Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Always applicable.

Directive 94/33/EC on the protection of young people at work

Not regulated.

Other regulations The product is classified and labelled in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006.

National regulations	Follow national regulation for work with chemical agents.
15.2. Chemical safety assessment	No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations	Not available.
References	GSK Hazard Determination
Information on evaluation method leading to the classification of mixture	The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.
Full text of any statements or R-phrases and H-statements under Sections 2 to 15	R20/22 Harmful by inhalation and if swallowed. R50 Very toxic to aquatic organisms. R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. H302 Harmful if swallowed. H332 Harmful if inhaled. H373 May cause damage to organs through prolonged or repeated exposure. H400 Very toxic to aquatic life. H411 Toxic to aquatic life with long lasting effects.
Revision information	None.
Training information	Follow training instructions when handling this material.
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.