

SAFETY DATA SHEET

SECTION 1 - IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Contact information

General



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Product identifier	Mirtazapine Transdermal Ointment
Synonyms	2-methyl-1,2,3,4,10,14b-hexahydropyrazino[2,1-a]pyrido[2,3-c][2]benzazepine
Trade names	Mirataz™
Chemical family	Mixture - contains mirtazapine
Relevant identified uses of the substance or mixture and uses advised against	Bulk formulated pharmaceutical mixture.
Note	This SDS is written to address potential worker health and safety issues associated with the handling of the formulated product/mixture. Workers manufacturing this product/mixture should consult the SDS of each hazardous ingredient for hazard information and handling recommendations.

SECTION 2 - HAZARDS IDENTIFICATION

Classification of the substance or mixture	Drugs in the finished state and intended for the final user are not subject to labeling in the US, EU or Canada. Consult prescribing/packaging information. The classification and labeling listed below is for bulk drug product.
Globally Harmonized System [GHS]	Irritant (eye) - Category 2.

SECTION 2 - HAZARDS IDENTIFICATION ...continued

Label elements**GHS hazard pictogram****GHS signal word**

Warning

GHS hazard statements

H319 - Causes serious eye irritation.

GHS precautionary statements

P264 - Wash hands thoroughly after handling. P280 - Wear protective gloves/eye protection/face protection. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice/attention.

Other hazards

No data were available for the mixture.

Note

This mixture is classified as hazardous under GHS as implemented by Regulation EC No 1272/2008 (EU CLP), WHMIS 2015 (Health Canada), and Hazard Communication Standard No. 1910.1200 (US OSHA).

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

<u>Ingredient</u>	<u>CAS #</u>	<u>EINECS/ ELINCS#</u>	<u>Amount</u>	<u>GHS Classification</u>
Polyethylene oxide/ polyethylene glycol	25322-68-3	500-038-2	50-75%	Not classified
2-(2-ethoxy- ethoxy)ethanol	111-90-0	203-919-7	10-25%	Eye Irrit 2: H319
Mirtazapine	85650-52-8	288-060-6	1-10%	ATO4: H302; STOT-SE3: H336
Polydimethylsiloxanes	63148-62-9	618-493-1	1-10%	CA 2: H411
Starch	9005-25-8	232-679-6	1-10%	Not classified

Note

The substances listed above are considered hazardous. The remaining components are not hazardous and/or present at amounts below reportable limits.

Starch and polyethylene glycol are included because they have OELs and are present at or above 1%.

Amounts are listed as ranges; the exact percentage of composition is withheld as a trade secret. See Section 16 for full text of GHS classifications.

SECTION 4 - FIRST AID MEASURES

Description of first aid measures

Immediate Medical Attention Needed	Yes
Eye Contact	If easy to do, remove contact lenses, if worn. Immediately flush eyes with copious quantities of water for at least 15 minutes. If irritation occurs or persists, notify medical personnel and supervisor.
Skin Contact	Wash exposed area with soap and water and remove contaminated clothing/shoes. If irritation occurs or persists, notify medical personnel and supervisor.
Inhalation	Immediately move exposed subject to fresh air. If not breathing, give artificial respiration. If breathing is labored, administer oxygen. Immediately notify medical personnel and supervisor.
Ingestion	Do not induce vomiting unless directed by medical personnel. Do not give anything to drink unless directed by medical personnel. Never give anything by mouth to an unconscious person. Notify medical personnel and supervisor.
Protection of first aid responders	See Section 8 for Exposure Controls/Personal Protection recommendations.
Most important symptoms and effects, both acute and delayed	See Sections 2 and 11.
Indication of immediate medical attention and special treatment needed, if necessary	Medical conditions aggravated by exposure: None known or reported. Treat symptomatically and supportively. If accidental exposure occurs to an individual who is also taking one or more concomitant medications, consult the respective package or prescribing information for potential drug interactions.

SECTION 5 - FIREFIGHTING MEASURES

Extinguishing media	Use water spray (fog), foam, dry powder, or carbon dioxide, as appropriate for surrounding fire and materials.
Specific hazards arising from the substance or mixture	No information identified. May emit carbon monoxide, carbon dioxide, oxides of nitrogen, and nitrogen-containing compounds.
Flammability/Explosivity	No explosivity or flammability data identified.
Advice for firefighters	Wear full protective clothing and a self-contained breathing apparatus with a full facepiece operated in the pressure demand or other positive pressure mode. Decontaminate all equipment after use.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	If material is released or spilled, cordon off spill area. Take proper precautions to minimize exposure by using appropriate personal protective equipment (see section 8). Area should be adequately ventilated. Do not breathe dust/mist/vapors/spray.
Environmental precautions	Do not empty into drains. Avoid release to the environment.
Methods and material for containment and cleaning up	For small spills, soak up material with absorbent, e.g., paper towels. For large spills, cordon off spill area and minimize the spreading of spilled material. Soak up material with absorbent. Collect spilled material, absorbent, and rinse water into suitable containers for proper disposal in accordance with applicable waste disposal regulations (see Section 13). Decontaminate the area twice.
Reference to other sections	See Sections 8 and 13 for more information.

SECTION 7 - HANDLING AND STORAGE

Precautions for safe handling	Follow recommendations for handling bulk formulated/packaged pharmaceutical agents (i.e., use of engineering controls and/or other personal protective equipment if needed). Wash thoroughly after handling.
Conditions for safe storage including any incompatibilities	Store at < 25°C (77°F)
Specific end use(s)	No information identified.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Note	Wash hands, face and other potentially exposed areas immediately in the event of physical contact.
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Control Parameters/ Occupational Exposure Limit Values

<u>Compound</u>	<u>Issuer</u>	<u>Type</u>	<u>OEL</u>
Polyethylene oxide/ polyethylene glycol	ECHA	DNEL	500 µg/m ³
	AIHA	8-hour TWA	10 mg/m ³ (Polyethylene glycols MW >200)
2-(2-ethoxy-ethoxy)ethanol	AIHA	TWA-8 HR	25 ppm
	Estonia	TWA-8 HR	10 ppm (skin)
	Germany	Ceiling	100 mg/m ³ (inhalable fraction)
	Germany	TWA-8 HR	50 mg/m ³ (inhalable fraction)
	Germany	TWA-8 HR	6 ppm
	Sweden	STEL	30 ppm

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION...continued

**Control Parameters/
Occupational Exposure
Limit Values ...continued**

<u>Compound</u>	<u>Issuer</u>	<u>Type</u>	<u>OEL</u>
	Sweden	TWA-8 HR	15 ppm
Mirtazapine	--	--	--
Polydimethylsiloxanes	--	--	--
Starch	ACGIH, Belgium, Bulgaria, Portugal, Spain, Singapore	TWA-8 HR	10 mg/m ³
	Czech Republic, Slovak Republic	TWA-8 HR	4 mg/m ³
	Greece, NIOSH	TWA-8 HR	10 mg/m ³ (inhalable fraction); 5 mg/m ³ (respirable fraction)
	Ireland, United Kingdom	TWA-8 HR	10 mg/m ³ (inhalable fraction); 4 mg/m ³ (respirable fraction)
	OSHA	TWA-8 HR	15 mg/m ³ (total dust); 5 mg/m ³ (respirable fraction)
	United Kingdom	STEL	30 mg/m ³ (inhalable fraction); 12 mg/m ³ (respirable fraction)
	NIOSH	TWA-10 HR	10 mg/m ³ (total dust); 5 mg/m ³ (respirable fraction)

**Exposure/Engineering
controls**

None required for normal handling of packaged product. If handling bulk product and/or containers are open/crushed/broken: Selection and use of containment devices and personal protective equipment should be based on a risk assessment of exposure potential. Use local exhaust and/or enclosure at aerosol/mist-generating points. Use engineered local exhaust ventilation (LEV) and/or enclosure for procedures where aerosolization may occur such as opened transfers, pumping, and spraying. Solutions can be handled outside a containment system or without LEV during procedures with no potential for aerosolization. All containers for solutions and slurries must be covered while being transferred.

**Respiratory
protection**

None required for normal handling of packaged product. If handling bulk product and/or containers are open/crushed/broken: Choice of respiratory protection should be appropriate to the task and the level of existing engineering controls. At a minimum, a tight-fitting full-face respirator with HEPA filters is required when performing aerosol generating operations. A powered air-purifying respirator (PAPR) with HEPA filters and head cover is required for spill cleanup.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION...continued

Hand protection	None required for the normal handling of packaged product. Wear nitrile or other impervious gloves if skin contact is possible.
Skin protection	Wear appropriate gloves, lab coat, or other protective overgarment if skin contact is likely. Base the choice of skin protection on the job activity, potential for skin contact and solvents and reagents in use.
Eye/face protection	None required for normal handling of packaged product. Wear safety glasses with side shields if eye contact is likely, e.g., during clean up of large spill. Base the choice of protection on the job activity and potential for contact with eyes and face.
Environmental Exposure Controls	Avoid release to the environment and operate within closed systems wherever practicable. Air and liquid emissions should be directed to appropriate pollution control devices. In case of spill, do not release to drains. Implement appropriate and effective emergency response procedures to prevent release or spread of contamination and to prevent inadvertent contact by personnel.
Other protective measures	Wash hands in the event of contact with mixture, especially before eating, drinking or smoking. Protective equipment is not to be worn outside the work area (e.g., in common areas or out-of-doors).

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Ointment
Color	White
Odor	Waxy
Odor threshold	No information identified.
pH	Not applicable
Melting point/ freezing point	No information identified.
Initial boiling point and boiling range	No information identified.
Flash point	No information identified.
Evaporation rate	No information identified.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	Not applicable.
Vapor pressure	No information identified

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ...continued

Vapor density	No information identified.
Relative density	No information identified.
Water solubility	No information identified.
Solvent solubility	No information identified.
Partition coefficient (<i>n</i>-octanol/water)	No information identified.
Auto-ignition temperature	No information identified.
Decomposition temperature	No information identified.
Viscosity	No information identified.
Explosive properties	No information identified.
Oxidizing properties	No information identified.
Other information	
Molecular formula	Not applicable (Mixture)
Molecular weight	Not applicable (Mixture)

SECTION 10 - STABILITY AND REACTIVITY

Reactivity	Stable under normal conditions.
Chemical stability	Stable under normal handling and storage conditions.
Possibility of hazardous reactions	Not expected to occur.
Conditions to avoid	No information identified.
Incompatible materials	No information identified.
Hazardous decomposition products	See Section 5 - Hazardous combustion products.

SECTION 11 - TOXICOLOGICAL INFORMATION

Note	No data on product formulation. The following information is for mirtazapine and other ingredients, where applicable.
Information on toxicological effects	
Route of entry	May be absorbed by inhalation, skin contact and ingestion.

SECTION 11 - TOXICOLOGICAL INFORMATION ...continued

Acute toxicity

<u>Compound</u>	<u>Type</u>	<u>Route</u>	<u>Species</u>	<u>Dose</u>
Polyethylene oxide/ polyethylene glycol	LD ₅₀	Oral	Rat	>30,000 mg/day
	LD ₅₀	Dermal	Rabbit	>20,000 mg/kg
2-(2-ethoxy-ethoxy)ethanol	LD ₅₀	Oral	Rat	1920 - >5000 mg/kg
	LD ₅₀	Oral	Mouse/ Rabbit	>2000 mg/kg
	LD ₅₀	Dermal	Rabbit	>2000 mg/kg
	LC ₅₀	Inhalation	Rat	>5240 mg/m ³
Mirtazapine	LD ₅₀	Oral	Rat (female)	320 mg/kg
	LD ₅₀	Oral	Rat (male)	490 mg/kg
Polydimethylsiloxanes	--	--	--	--
Starch	--	--	--	--

Irritation/Corrosion No studies identified.

Sensitization No studies identified.

STOT-single exposure No studies identified.

STOT-repeated exposure/Repeat-dose toxicity No studies identified.

Reproductive toxicity No studies identified.

Developmental toxicity No studies identified.

Genotoxicity No studies identified.

Carcinogenicity No studies identified. None of the components of this mixture present at levels greater than or equal to 0.1% are listed by NTP, IARC, ACGIH or OSHA as a carcinogen.

Aspiration hazard No data available.

Human health data See "Section 2 - Other Hazards"

SECTION 12 - ECOLOGICAL INFORMATION

Toxicity

<u>Compound</u>	<u>Type</u>	<u>Species</u>	<u>Concentration</u>
Polyethylene oxide/ polyethylene glycol	EC ₅₀ (24 h)	<i>Daphnia magna</i> (daphnid)	>1000 mg/L
	LC ₅₀ (96 h)	<i>Poecilia reticulata</i> (freshwater fish)	>100 mg/L
2-(2-ethoxy-ethoxy)ethanol	LC ₅₀ (96 h)	Fish (various species)	>1000 mg/L
	EC ₅₀ (48 h)	Freshwater invertebrates	>1000 mg/L
Mirtazapine	--	--	--
Polydimethylsiloxanes	LC ₅₀ (96 h)	Fish	3.16 mg/L
	EC ₅₀ (48 h)	Crustacean (Daphnia)	44.50 mg/L

SECTION 12 - ECOLOGICAL INFORMATION ...continued

Toxicity ...continued

<u>Compound</u>	<u>Type</u>	<u>Species</u>	<u>Concentration</u>
Starch	--	--	--
Persistence and Degradability	No data available.		
Bioaccumulative potential	No data available.		
Mobility in soil	No data available.		
Results of PBT and vPvB assessment	Not performed.		
Other adverse effects	No data available.		
Note	The ecological characteristics of this mixture have not been fully investigated. Releases to the environment should be avoided.		

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste treatment methods	Dispose of wastes in accordance to prescribed federal, state, and local guidelines, e.g., appropriately permitted chemical waste incinerator. Do not send down the drain or flush down the toilet. All wastes containing the material should be properly labeled. 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.
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SECTION 14 - TRANSPORT INFORMATION

Transport	Based on the available data, this product/mixture is not regulated as a hazardous material/dangerous good under EU ADR/RID, US DOT, Canada TDG, IATA, or IMDG.
UN number	None assigned.
UN proper shipping name	None assigned.
Transport hazard classes and packing group	None assigned.
Environmental hazards	This product/mixture is not regulated as an environmental hazard or a marine pollutant.
Special precautions for users	Due to lack of data, avoid release to the environment.

SECTION 14 - TRANSPORT INFORMATION ...continued

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

SECTION 15 - REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture This SDS generally complies with the requirements listed under current guidelines in the US, EU and Canada. Consult your local or regional authorities for more information.

Chemical safety assessment Not conducted.

TSCA status Drugs are exempt from TSCA.

SARA section 313 Not listed.

California proposition 65 Not listed.

Additional information No other information identified.

SECTION 16 - OTHER INFORMATION

Full text of H phrases and GHS classifications E12A - Eye irritant Category 2A. H319 - Causes serious eye irritation. ATO4 - Acute Toxicity (Oral) Category 4. H302 - Harmful if swallowed. STOT-SE3 - Specific Target Organ Toxicity Following Single Exposure Category 3. H336 - May cause drowsiness or dizziness. CA2 - Chronic Aquatic Toxicity Category 2. H411 - Toxic to aquatic life with long lasting effects.

Sources of data Information from published literature and internal company data.

Abbreviations ACGIH - American Conference of Governmental Industrial Hygienists; ADR/RID - European Agreement Concerning the International Carriage of Dangerous Goods by Road/Rail; AIHA - American Industrial Hygiene Association; CAS# - Chemical Abstract Services Number; CLP - Classification, Labelling, and Packaging of Substances and Mixtures; DNEL - Derived No Effect Level; DOT - Department of Transportation; EINECS - European Inventory of New and Existing Chemical Substances; ELINCS - European List of Notified Chemical Substances; EU - European Union; GHS - Globally Harmonized System of Classification and Labeling of Chemicals; IARC - International Agency for Research on Cancer; IDLH - Immediately Dangerous to Life or Health; IATA - International Air Transport Association; IMDG - International Maritime Dangerous Goods; LOEL - Lowest Observed Effect Level; LOAEL - Lowest Observed Adverse Effect Level; NIOSH - The National Institute for Occupational Safety and Health; NOEL - No Observed Effect Level; NOAEL - No Observed Adverse Effect Level; NTP - National Toxicology Program; OEL - Occupational Exposure Limit; OSHA - Occupational Safety and Health Administration; PNEC - Predicted No Effect Concentration; SARA - Superfund Amendments and Reauthorization Act; STOT -

SECTION 16 - OTHER INFORMATION ...continued

**Abbreviations
...continued** Specific Target Organ Toxicity; STEL - Short Term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; WHMIS - Workplace Hazardous Materials Information System

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Revisions This is the first version of this SDS.

Disclaimer The above information is based on data available to us and is believed to be correct. Since the information may be applied under conditions beyond our control and with which we may be unfamiliar, we do not assume any responsibility for the results of its use and all persons receiving it must make their own determination of the effects, properties and protections which pertain to their particular conditions.

No representation, warranty, or guarantee, express or implied (including a warranty of fitness or merchantability for a particular purpose), is made with respect to the materials, the accuracy of this information, the results to be obtained from the use thereof, or the hazards connected with the use of the material. Caution should be used in the handling and use of the material because it is a pharmaceutical product. 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 Safety Data Sheet is not, and is not intended to be, a substitute for consultation with appropriately trained personnel.