SAFETY DATA SHEET

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1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION

Product Name Butrans® (buprenorphine) Transdermal System CIII 5, 7.5, 10, 15, 20 mcg/hour

Synonyms BTDS

Other Information **This is a controlled substance under Schedule III of the Controlled Substances Act.**

Recommended Use Opioid analgesic

Uses advised against Do not use without a prescription.

Distributor Address Purdue Pharma L.P.
One Stamford Forum
201 Tresser Boulevard
Stamford, Connecticut 06901-3431
(888) 726-7535

24 Hour Emergency Phone Number Chemtrec (800) 424-9300
For all international transportation emergencies, call Chemtrec collect at (703) 527-3887.

2. HAZARDS IDENTIFICATION

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.

Emergency Overview

Appearance Dermal patch **Physical state** Solid **Odor** No information available.

Hazards Not Otherwise Classified (HNOC)
Not Applicable.

Other Information
No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Family Opioid analgesic.

Chemical Name	CAS No	Weight %
Buprenorphine	52485-79-7	1-5
Levulinic acid	123-76-2	1-5
Povidone (crospovidone)	9003-39-8	1-5
Polyacrylate	9003-04-7	80-90

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 In case of accidental ingestion, wash out mouth with copious amounts of water. 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 May cause drowsiness, dizziness, or respiratory depression.

Indication of any immediate medical attention and special treatment needed

Note to physicians This material is an opioid or derivative. Reduced sensation of pain, CNS effects, and opioid-related effects may occur, including respiratory depression. Naloxone has been known to counter the effects of opioids.

5. FIRE-FIGHTING MEASURES

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

Unsuitable Extinguishing Media No information available.

Specific hazards arising from the chemical
No information available.

Explosion Data
Sensitivity to Mechanical Impact No information available.
Sensitivity to Static Discharge No information available.

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 Use personal protective equipment as required.

Other Information Do not smoke, eat or drink in areas where this material is handled or stored.

Environmental precautions

Environmental precautions Prevent product from entering drains. Do not flush into surface water or sanitary sewer system. 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 Collect the spilled Butrans® Transdermal System pouches for reuse or disposal as appropriate. Buprenorphine is a Schedule III controlled substance. All cleanup operations should be witnessed by more than one individual. The amount of material collected should be assessed and documented. Notify appropriate company regulatory personnel. Dispose of all solid waste in accordance with federal, state, and local regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Avoid contact with skin and eyes. Use personal protective equipment as required.

Conditions for safe storage, including any incompatibilities

Storage conditions Buprenorphine is a Schedule III controlled substance and requires DEA-compliant storage. Keep container tightly closed. Protect from light.

Incompatible materials None known based on available information.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	Performance-Based Exposure Band (PBEB)	Company OEG (ug/m³)
Buprenorphine	4 (1-10 ug/m³)	None

Engineering Controls None under normal use conditions.

Individual Protection Measures (Personal Protective Equipment)

Eye/face protection No special protective measures are necessary.

Skin and body protection No special protective measures are necessary.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Physical state	Solid
Appearance	Dermal patch
Odor	No information available.
Color	Beige
Odor threshold	No information available.

Property	**Values**	**Remarks • Method**
pH	No information available.	
Melting point / melting range	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 limits in air		
Upper flammability limits		
Lower flammability limits		
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 (n-octanol/water)	No information available.	
Autoignition temperature	No information available.	
Decomposition temperature	No information available.	
Kinematic viscosity	No information available.	
Dynamic viscosity	No information available.	
Explosive properties	No information available.	
Oxidizing properties	No information available.	

Other Information

Softening point	No information available.
Molecular weight	No information available.
VOC content; (%)	No information available.
Density	No information available.
Bulk density	No information available.

10. STABILITY AND REACTIVITY

Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	No information available.
Hazardous polymerization	Hazardous polymerization does not occur.
Conditions to avoid	Temperatures above 30 °C / 85 °F.
Incompatible materials	None known based on available information.
Hazardous decomposition products	None known based on available information.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information	No data available.
Inhalation	No data available.
Eye contact	No data available.
Skin contact	No data available.

Ingestion No data available.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Buprenorphine	>1000 mg/kg (Rat)	-	-
Levulinic acid	1850 mg/kg (Rat)	5 g/kg (Rabbit)	-
Povidone (crospovidone)	100 g/kg (Rat)	-	-
Polyacrylate	40 g/kg (Rat)	-	-

Information on toxicological effects

Symptoms May cause drowsiness, dizziness, or respiratory depression.

Sensitization No information available.

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

Germ cell mutagenicity Buprenorphine results were negative in tests using Chinese hamster bone marrow and spermatogonia cells, and in a mouse lymphoma L5178Y assay. Results were equivocal in the Ames bacterial reverse mutation test (negative in studies conducted in two laboratories, but positive in frame shift mutation assay at high plate concentrations (5 mg/plate) in a third study).

Carcinogenicity Buprenorphine administered in rat diet at doses of 0.6, 5.5, and 56 mg/kg/day for 27 months resulted in statistically significant dose-related increases in testicular interstitial (Leydig's) cell tumors, according to the trend test adjusted for survival. Pair-wise comparison of the high dose against control, however, failed to show statistical significance. In an 86 week mouse study, buprenorphine was administered in the diet at doses of 8, 50, and 100 mg/kg/day and was not carcinogenic. Not listed by IARC, NTP, or US OSHA.

Chemical Name	ACGIH	IARC	NTP	OSHA
Povidone (crospovidone) 9003-39-8		Group 3		

Legend

IARC (International Agency for Research on Cancer)
Group 3 - Not classifiable as a human carcinogen

Reproductive toxicity Buprenorphine reproductive studies in rats demonstrated no evidence of impaired fertility at daily oral doses up to 80 mg/kg, or up to 5 mg/kg I.M. or S.C. Buprenorphine was not teratogenic in rats or rabbits after I.M. or S.C. doses up to 5 mg/kg/day, IV doses up to 0.8 mg/kg/day, or oral doses in rats (up to 160 mg/kg/day), and rabbits (up to 25 mg/kg/day). Significant increases in skeletal abnormalities (e.g. extra thoracic vertebra or ribs) were noted in rats after S.C. administration of 1 mg/kg/day and up, and in rabbits after I.M. administration of 5 mg/kg/day. However, these increases were not statistically significant. Increases in skeletal abnormalities after oral administration were not observed in rats, and increases in rabbits (1-25 mg/kg/day), were not statistically significant. An apparent lack of milk production during general reproduction studies with buprenorphine in rats caused decreased viability and lactation indices.

Developmental Toxicity No information available.

Teratogenicity No information available.

STOT-single exposure No information available.

STOT-repeated exposure No information available.

Chronic Toxicity No information available.

Subchronic toxicity No information available.

Aspiration hazard Not Applicable.

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

Oral LD50 663 mg/kg

Dermal LD50 196 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Buprenorphine	NOEC 3.6 mg/L Growth Rate	NOEC 0.13 mg/L (FHM) for 28 days		NOEC 0.26 mg/L (Daphnia) for 21 days

Persistence and degradability No information available.

Bioaccumulation Material does not bioaccumulate.

Chemical Name	Partition coefficient
Buprenorphine	3.4

Other adverse effects No information available.

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 Do not reuse container.

14. TRANSPORT INFORMATION

DOT Not regulated.

IATA Not regulated.

15. REGULATORY INFORMATION

International Inventories

TSCA Not determined.
DSL Not determined.

Legend:

TSCA - United States Toxic Substances Control Act Section 8 (b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

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)
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.

US State Right-to-Know Regulations
US EPA Label Information
EPA Pesticide Registration Number Not Applicable.

16. OTHER INFORMATION

NFPA	**Health Hazards** 0	**Flammability** 0	**Instability** 0	**Physical and Chemical Properties** -
HMIS	**Health Hazards** 0	**Flammability** 0	**Physical Hazards** 0	**Personal protection** -

General Information
In an industrial setting, refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for Safe Handling.

Prepared By
This SDS was prepared by the Occupational and Environmental Assessment Section of Purdue Pharma L.P.

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Disclaimer
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End of Safety Data Sheet