# **Material Safety Data Sheet**

Version 5.2 Revision Date 12/07/2012 Print Date 05/16/2014

#### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Tadalafil

# 2. HAZARDS IDENTIFICATION

# **Emergency Overview**

# **Target Organs**

Central nervous system, Liver, Kidney, Blood, Lungs

# **GHS Classification**

Flammable liquids (Category 2)
Acute toxicity, Oral (Category 4)
Acute toxicity, Inhalation (Category 4)
Acute toxicity, Dermal (Category 5)
Skin irritation (Category 3)
Eye irritation (Category 2A)

# GHS Label elements, including precautionary statements

Hazard statement(s)

H225 Highly flammable liquid and vapour.
H302 + H332 Harmful if swallowed or if inhaled
H313 May be harmful in contact with skin.

H316 Causes mild skin irritation. H319 Causes serious eye irritation.

Precautionary statement(s)

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if

present and easy to do. Continue rinsing.

**NFPA Rating** 

Health hazard: 2
Fire: 3
Reactivity Hazard: 0

**Potential Health Effects** 

**Inhalation** May be harmful if inhaled. May cause respiratory tract irritation.

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**Skin** May be harmful if absorbed through skin. May cause skin irritation.

**Eyes** May cause eye irritation. **Ingestion** May be harmful if swallowed.

#### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component		Classification	Concentration
Acetonitrile			
CAS-No.	75-05-8	Flam. Liq. 2; Acute Tox. 4; Eye	90 - 100 %
EC-No.	200-835-2	Irrit. 2; H225, H302 + H312 +	
Index-No.	608-001-00-3	H332, H319	
Registration number	01-2119471307-38-XXXX		

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

#### 4. FIRST AID MEASURES

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

#### In case of eye contact

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

#### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

# 5. FIREFIGHTING MEASURES

#### Conditions of flammability

Not flammable or combustible.

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

# Special protective equipment for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

#### **Hazardous combustion products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx)

# **Further information**

Use water spray to cool unopened containers.

# 6. ACCIDENTAL RELEASE MEASURES

#### Personal precautions

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

# **Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

# Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

## 7. HANDLING AND STORAGE

#### Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

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Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

#### Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature: -20 °C

# 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis		
Acetonitrile	75-05-8	TWA	20 ppm	USA. ACGIH Threshold Limit Values (TLV)		
Remarks	Lower Respi absorption	Lower Respiratory Tract irritation Not classifiable as a human carcinogen Danger of cutaneous absorption				
		TWA	20 ppm 34 mg/m3	USA. NIOSH Recommended Exposure Limits		
	Forms cyanide in the body.					
		TWA	40 ppm 70 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants		
	The value in mg/m3 is approximate.					
		TWA	40 ppm 70 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000		
		STEL	60 ppm 105 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000		

#### Personal protective equipment

#### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### **Hand protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### Eye protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin and body protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

# Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

# **Appearance**

Form liquid

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Colour no data available

Safety data

pH no data available

Melting no data available

point/freezing point

Boiling point 81 - 82 °C (178 - 180 °F) at 1.013 hPa (0.760 mmHg)

81 - 82 °C (178 - 180 °F) at 1.013 hPa (0.760 mmHg)

Flash point 2 °C (36 °F) - closed cup

2 °C (36 °F) - closed cup

Ignition temperature no data available
Auto-ignition no data available

temperature

Lower explosion limit 4.4 %(V)

4.4 %(V)

Upper explosion limit 16 %(V)

16 %(V)

Vapour pressure no data available

Density 0.782 g/cm3 at 20 °C (68 °F)

0.782 g/cm3 at 20 °C (68 °F)

Water solubility no data available Partition coefficient: no data available

n-octanol/water

Relative vapor

no data available

density

Odour no data available
Odour Threshold no data available
Evaporation rate no data available

# 10. STABILITY AND REACTIVITY

## Chemical stability

Stable under recommended storage conditions.

# Possibility of hazardous reactions

no data available

#### Conditions to avoid

Heat, flames and sparks. Extremes of temperature and direct sunlight.

# Materials to avoid

acids, Bases, Oxidizing agents, Alkali metals

# **Hazardous decomposition products**

Other decomposition products - no data available

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx)

# 11. TOXICOLOGICAL INFORMATION

#### **Acute toxicity**

#### Oral LD50

no data available

# Inhalation LC50

no data available

#### **Dermal LD50**

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no data available

## Other information on acute toxicity

no data available

#### Skin corrosion/irritation

no data available

#### Serious eye damage/eye irritation

Eyes: no data available

#### Respiratory or skin sensitization

no data available

#### Germ cell mutagenicity

no data available

#### Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as

probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a

known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a

carcinogen or potential carcinogen by OSHA.

#### Reproductive toxicity

no data available

#### **Teratogenicity**

no data available

# Specific target organ toxicity - single exposure (Globally Harmonized System)

no data available

## Specific target organ toxicity - repeated exposure (Globally Harmonized System)

no data available

# **Aspiration hazard**

no data available

#### Potential health effects

**Inhalation** May be harmful if inhaled. May cause respiratory tract irritation.

**Ingestion** May be harmful if swallowed.

**Skin** May be harmful if absorbed through skin. May cause skin irritation.

**Eyes** May cause eye irritation.

### Signs and Symptoms of Exposure

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Treat as cyanide poisoning., Always have on hand a cyanide first-aid kit, together with proper instructions., The onset of symptoms is generally delayed pending conversion to cyanide., Nausea, Vomiting, Diarrhoea, Headache, Dizziness, Rash, Cyanosis

# Synergistic effects

no data available

# **Additional Information**

RTECS: Not available

# 12. ECOLOGICAL INFORMATION

# **Toxicity**

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no data available

# Persistence and degradability

no data available

# Bioaccumulative potential

no data available

#### Mobility in soil

no data available

#### PBT and vPvB assessment

no data available

#### Other adverse effects

no data available

#### 13. DISPOSAL CONSIDERATIONS

#### **Product**

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

#### Contaminated packaging

Dispose of as unused product.

# 14. TRANSPORT INFORMATION

DOT (US)

UN number: 1648 Class: 3 Packing group: II

Proper shipping name: Acetonitrile, solution

Reportable Quantity (RQ): 5005 lbs

Marine Pollutant: No

Poison Inhalation Hazard: No

**IMDG** 

UN number: 1648 Class: 3 Packing group: II EMS-No: F-E, S-D

Proper shipping name: ACETONITRILE, SOLUTION

Marine Pollutant: No

**IATA** 

UN number: 1648 Class: 3 Packing group: II

Proper shipping name: Acetonitrile, solution

# 15. REGULATORY INFORMATION

#### **SARA 302 Components**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

# **SARA 313 Components**

The following components are subject to reporting levels established by SARA Title III, Section 313:

Acetonitrile CAS-No. Revision Date 75-05-8 2007-07-01

# **Massachusetts Right To Know Components**

Acetonitrile CAS-No. Revision Date 75-05-8 2007-07-01

Pennsylvania Right To Know Components

Acetonitrile CAS-No. Revision Date 75-05-8 2007-07-01

**New Jersey Right To Know Components** 

Acetonitrile CAS-No. Revision Date 75-05-8 2007-07-01

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# California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

# **16. OTHER INFORMATION**

# Text of H-code(s) and R-phrase(s) mentioned in Section 3

Acute Tox. Acute toxicity
Eye Irrit. Eye irritation
Flam. Liq. Flammable liquids

H225 Highly flammable liquid and vapour.

H302 + H312 + Harmful if swallowed, in contact with skin or if inhaled

H332

H319 Causes serious eye irritation.

#### **Further information**

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