

Material Safety Data Sheet



71975

KOD Xtreme Hot Start DNA Polymerase

1. Product and company identification

Supplier/Manufacturer : Manufactured by EMD Chemicals, Inc
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Madison, WI 53719
(608) 238-6110
(800) 207-0144
FAX: (608) 238-1388

P.O. Box 12087
La Jolla, CA 92039-2087
(858) 450-5558
(800) 854-3417
FAX: (858) 453-3552

In case of emergency Call Chemtrec®
(800)424-9300 (within U.S.A.)
(703)527-3887 (outside U.S.A.)

Responsible name : **Company**

Not available.

Product name : KOD Xtreme Hot Start DNA Polymerase

Material uses : Other non-specified industry: Analytical reagent.

Validation date : **7/18/2008.**

Print date : 7/18/2008.

2. Hazards identification

Physical state : Liquid.

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Emergency overview : Warning!

CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS:
KIDNEYS, RESPIRATORY TRACT, SKIN, EYE, LENS OR CORNEA.
Avoid contact with skin and clothing. Avoid breathing vapor or mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.

Routes of entry : Dermal contact. Eye contact.

Potential acute health effects

Eyes : Irritating to eyes.

Skin : Irritating to skin.

Inhalation : Irritating to respiratory system.

Ingestion : No known significant effects or critical hazards.

Potential chronic health effects : **CARCINOGENIC EFFECTS** Not available.

MUTAGENIC EFFECTS Not available.

TERATOGENIC EFFECTS: Not available.

Medical conditions aggravated by over-exposure : Repeated skin exposure can produce local skin destruction or dermatitis. Repeated or prolonged exposure to the substance can produce lung damage. Repeated or prolonged contact with spray or mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to the substance can produce target organs damage.

See toxicological information (section 11)

3 . Composition/information on ingredients

United States

<u>Name</u>	<u>CAS number</u>	<u>%</u>
glycerin	56-81-5	50
Tris (hydroxymethyl)aminomethane	77-86-1	4.8
DNA Polymerase	N/A	<10

4 . First aid measures

- Eye contact** : Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Inhalation** : Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if symptoms occur. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training.

5 . Fire-fighting measures

- Flammability of the product** : May be combustible at high temperature.
- Products of combustion** : These products are carbon oxides (CO, CO₂), nitrogen oxides (NO, NO₂ etc.).
- Extinguishing media**
- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
 - Not suitable** : None known.
- Special exposure hazards** : No specific hazard.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 . Accidental release measures

- Personal precautions** : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment.
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
- Methods for cleaning up** : If emergency personnel are unavailable, contain spilled material. For small spills, add absorbent (soil may be used in the absence of other suitable materials), scoop up material and place in a sealable, liquid-proof container for disposal. For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal.

7 . Handling and storage

- Handling** : Avoid contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Avoid breathing vapor or mist. Wash thoroughly after handling.
- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area.

8 . Exposure controls/personal protection

Product name

United States

glycerin

Exposure limits

ACGIH TLV (United States, 2003). Notes: Inhalable fraction. The concentration of inhalable particulate for the application of this TLV is to be determined from the fraction passing a size-selector with the characteristics defined in the ACGIH TLVs book Appendix D paragraph "A"

TWA: 10 mg/m³ 8 hour/hours. Form: Mist

OSHA PEL (United States, 1993).

TWA: 5 mg/m³ 8 hour/hours. Form: Respirable fraction

TWA: 15 mg/m³ 8 hour/hours. Form: Total dust

OSHA PEL 1989 (United States, 1989).

TWA: 5 mg/m³ 8 hour/hours. Form: Respirable fraction

TWA: 10 mg/m³ 8 hour/hours. Form: Total dust

Consult local authorities for acceptable exposure limits.

- Engineering measures** : Use only with adequate ventilation. If user operations generate dust, fumes, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Personal protection

- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.

- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

9 . Physical and chemical properties

- Component** : Not available.
- Physical state** : Liquid.
- Flash point** : The lowest known value is Closed cup: 159.9°C (319.8°F). Open cup: 177°C (350.6°F). (glycerin)
- Auto-ignition temperature** : The lowest known value is 369.9°C (697.8°F) (glycerin).
- Boiling/condensation point** : The lowest known value is 290.05°C (554.1°F) (glycerin).
- Melting/freezing point** : May start to solidify at 19.9°C (67.8°F) based on data for: glycerin.
- Relative density** : The only known value is 1.261 (Water = 1) (glycerin).
- Vapor density** : The highest known value is 3.1 (Air = 1) (glycerin).

9 . Physical and chemical properties

- Dispersibility properties** : See solubility in water.
Solubility : Easily soluble in cold water.

10 . Stability and reactivity

- Stability and reactivity** : The product is stable.
Incompatibility with various substances : Reactive or incompatible with the following materials: oxidizing materials and alkalis.

11 . Toxicological information

Toxicity data

United States

<u>Product/ingredient name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
glycerin	LD50	12600 mg/kg	Oral	Rat
	LD50	4090 mg/kg	Oral	Mouse
	LD50	7750 mg/kg	Oral	Guinea pig
Tris (hydroxymethyl) aminomethane	LD50	5900 mg/kg	Oral	Rat
	LDLo	1000 mg/kg	Oral	Rabbit

- Chronic effects on humans** : Contains material which causes damage to the following organs: kidneys, upper respiratory tract, skin, eye, lens or cornea.

- Other toxic effects on humans** : Not considered to be toxic to humans.

Specific effects

- Carcinogenic effects** : No known significant effects or critical hazards.
Mutagenic effects : No known significant effects or critical hazards.
Teratogenicity / Reproductive toxicity : No known significant effects or critical hazards.

Sensitization

- Ingestion** : No known significant effects or critical hazards.
Inhalation : Irritating to respiratory system.
Eyes : Irritating to eyes.
Skin : Irritating to skin.

12 . Ecological information

Ecotoxicity data

United States

<u>Product/ingredient name</u>	<u>Species</u>	<u>Period</u>	<u>Result</u>
glycerin	Oncorhynchus mykiss (LC50)	96 hour/hours	54000 mg/l

- Environmental precautions** : No known significant effects or critical hazards.
Products of degradation : These products are carbon oxides (CO, CO₂) and water, nitrogen oxides (NO, NO₂ etc.).
Toxicity of the products of biodegradation : The product itself and its products of degradation are not toxic.

13 . Disposal considerations

- Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

13 . Disposal considerations

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Class	PG*	Label	Additional information
DOT Classification	Not regulated.	-	-	-		-
TDG Classification	Not regulated.	-	-	-		-
ADR/RID Class	Not regulated.	-	-	-		-
IATA-DGR Class	Not regulated.	-	-	-		-

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Irritating material
Target organ effects

U.S. Federal regulations : TSCA 8(b) inventory: This product is being sent to you as a Research and Development product as defined by the Toxic Substances Act (TSCA) of 1976. Due to TSCA's R&D exemption, this product is not listed on the U.S. EPA's Toxic Substances Control Act (TSCA's) inventory. As a TSCA exempt R&D substance, this product must be used by or directly under the supervision of a technically qualified individual(s) as defined by TSCA. This product may not be used for commercial purposes or in formulations used for commercial purposes

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: glycerin

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: glycerin:
Immediate (acute) health hazard, Delayed (chronic) health hazard

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: No products were found.

Clean Air Act (CAA) 112 accidental release prevention: No products were found.

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

State regulations : Pennsylvania RTK: glycerin: (generic environmental hazard)
Massachusetts RTK: glycerin

Canada

WHMIS (Canada) : Class D-2B: Material causing other toxic effects (Toxic).
CEPA DSL: glycerin; Tris (hydroxymethyl)aminomethane

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

15 . Regulatory information

Mexico

Classification :



EU regulations

Hazard symbol/symbols :



Risk phrases : R36/37/38- Irritating to eyes, respiratory system and skin.

Safety phrases : S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.S36- Wear suitable protective clothing.S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

International regulations

International lists : Australia (NICNAS): glycerin; sulfuric acid, magnesium salt, heptahydrate; Tris (hydroxymethyl)aminomethane

China: glycerin; sulfuric acid, magnesium salt, heptahydrate; Tris (hydroxymethyl)aminomethane

Germany water class: glycerin; Tris (hydroxymethyl)aminomethane

Japan (METI): glycerin; sulfuric acid, magnesium salt, heptahydrate; Tris (hydroxymethyl)aminomethane

Korea (TCCL): glycerin; Tris (hydroxymethyl)aminomethane

Philippines (RA6969): glycerin; sulfuric acid, magnesium salt, heptahydrate; Tris (hydroxymethyl)aminomethane

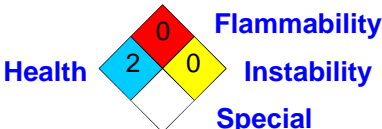
16 . Other information

Label requirements : CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS: KIDNEYS, RESPIRATORY TRACT, SKIN, EYE, LENS OR CORNEA.

Hazardous Material Information System (U.S.A.) :

Health	*	1
Fire hazard		0
Reactivity		0
Personal protection		C

National Fire Protection Association (U.S.A.) :



Notice to reader

16 . Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.