

Material Safety Data Sheet



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1. Identification of the substance/mixture and of the company/undertaking

Product name: KODAK T-MAX Developer

Product code: 1402767

Supplier: KODAK AUSTRALASIA Pty. Ltd., Level 2, 436 Johnston Street, Abbotsford, Victoria, 3067

For Chemical Emergency Information, in Australia call 1800 033111 (24 hour service Australia-wide); in New Zealand call 0800 734 607 (24 hour service); in Asia call +86 21 63500836

For Other Information, call 61 3 8417 8000.

Synonyms: PCD 5337

Product Use: photographic processing chemical (developer/activator), For industrial use only.

2. Hazards identification

STATEMENT OF HAZARDOUS NATURE: Hazardous according to criteria of Australian Safety and Compensation Council

Corrosive, Dangerous for the environment. Causes burns. Harmful by inhalation and if swallowed. Harmful: danger of serious damage to health by prolonged exposure if swallowed. Limited evidence of a carcinogenic effect. Possible risk of irreversible effects. May cause sensitization by skin contact. Very toxic to aquatic organisms.

Poisons Schedule: 6

Contains: Diethanolamine, Hydroquinone

3. Composition/information on ingredients

Weight percent	Components (CAS-No.)
35 - 45	Water (7732-18-5)
30 - 35	Diethanolamine (111-42-2)
15 - 20	Sulphur dioxide (7446-09-5)
1 - 5	Sodium bisulphite (7631-90-5)
1 - 5	Hydroquinone (123-31-9)
0.1 - <1	4-hydroxymethyl-4-methyl-1-phenyl-3-pyrazolidinone (13047-13-7)

4. First aid measures

Inhalation: If inhaled, remove to fresh air. Get medical attention.

Eyes: If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. If easy to do, remove contact lens, if worn. Get medical attention.

Skin: If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Get medical attention if symptoms occur.

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Ingestion: If swallowed, do NOT induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or poison control centre immediately.

5. Fire-fighting measures

Hazchem Code: Not specified

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

Special Fire-Fighting Procedures: Wear self-contained breathing apparatus and protective clothing. Fire or excessive heat may produce hazardous decomposition products.

Hazardous Combustion Products: Carbon oxides, nitrogen oxides (NOx), Sulphur oxides, (see also Hazardous Decomposition Products sections.)

Unusual Fire and Explosion Hazards: None.

6. Accidental release measures

Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Contaminated absorbent should be disposed of in accordance with local regulations. Clean surface thoroughly to remove residual contamination.

7. Handling and storage

Personal precautions: Do not breathe mist or vapour at concentrations greater than the exposure limits. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Use only with adequate ventilation. Wash thoroughly after handling. Do not eat, drink or smoke when using this product.

Prevention of Fire and Explosion: Keep from contact with oxidizing materials.

Storage: Keep container tightly closed. Keep away from incompatible substances (see Incompatibility section.)

8. Exposure controls/personal protection

Occupational exposure controls

Chemical Name	Regulatory List	Value Type	Value
Diethanolamine	Exposure Standards	time weighted average	3 ppm 13 mg/m ³
Sulphur dioxide		time weighted average	2 ppm 5.2 mg/m ³
		Short term exposure limit	5 ppm 13 mg/m ³
Sodium bisulphite		time weighted average	5 mg/m ³
Hydroquinone		time weighted average	2 mg/m ³
Diethanolamine	New Zealand	time weighted average	3 ppm 13 mg/m ³
			<i>skin notation</i>
Sulphur dioxide		time weighted average	2 ppm 5.2 mg/m ³
		Short term exposure limit	5 ppm 13 mg/m ³
Sodium bisulphite		time weighted average	5 mg/m ³
Hydroquinone		time weighted average	2 mg/m ³

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Ventilation: Use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. Controls should be sufficient so that applicable occupational exposure limits are not exceeded.

Respiratory protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits, an approved respirator must be worn. Respirator type: organic vapour. A respirator should be worn if hazardous decomposition products are likely to be or have been released. Respirator type: acid gas If respirators are used, a program should be instituted to assure compliance with applicable federal, state, commonwealth, provincial, or local laws and regulations.

Eye protection: Wear safety glasses with side shields (or goggles).

Hand protection: Wear impervious gloves and protective clothing appropriate for the risk of exposure.

9. Physical and chemical properties

Physical form: liquid

Colour: clear

Odour: amine

Specific gravity: 1.22 - 1.23

Vapour pressure: 24 mbar (18.0 mm Hg)

Vapour density: 0.6

Boiling point/boiling range: > 100 °C (> 212.0 °F) (estimated)

Water solubility: complete

pH: 8.3 - 8.8

Flash point: does not flash

Flammability Limits: Not specified

10. Stability and reactivity

Stability: Stable under normal conditions.

Incompatibility: Strong oxidizing agents, Strong acids Contact with strong acids liberates sulphur dioxide.

Hazardous decomposition products: Sulphur oxides, nitrogen oxides (NOx).

Hazardous Polymerization: Hazardous polymerisation does not occur.

11. Toxicological information

Effects of Exposure

General advice:

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Contains: Diethanolamine. Based on animal data, may cause adverse effects on the following organs/systems: kidney, liver, blood, nervous system, testes.

Contains: Hydroquinone. Possible risk of irreversible effects. Limited evidence of a carcinogenic effect.

Contains: 4-hydroxymethyl-4-methyl-1-phenyl-3-pyrazolidinone. May cause adverse reproductive effects such as infertility based on animal data. Based on repeated-dose ingestion studies in animals, this chemical may cause blood, testicular, and adverse reproductive effects.

Inhalation: Harmful by inhalation. In contact with strong acids or if heated, sulphites may liberate sulphur dioxide gas. Sulphur dioxide gas is irritating to the respiratory tract. Some asthmatics or hypersensitive individuals may experience difficult breathing.

Eyes: Causes burns.

Skin: Causes burns. May cause sensitization by skin contact.

Ingestion: Harmful if swallowed. Harmful: danger of serious damage to health by prolonged exposure if swallowed. Some asthmatics or sulfite-sensitive individuals may experience wheezing, chest tightness, stomach upset, hives, faintness, weakness and diarrhea.

Data for Diethanolamine (CAS 111-42-2):

Acute Toxicity Data:

Oral LD50 (rat): 1,410 mg/kg

- Dermal LD50 (rabbit): 12,983.88 mg/kg
- Skin irritation: strong
- Eye irritation: Corrosive

Definitions for the following section(s): LOEL =lowest-observed-effect level, LOAEL = lowest-observed-adverse-effect, NOAEL = no observed-adverse-effect level, NOEL =no-observed-effect level.

Repeated dose toxicity:

- Inhalation (30-day, guinea pig): NOAEL; 0.6 ppm
- Feeding study (30-day, male rat): Lowest observable effect level; 0.1 % in diet

Data for Sodium bisulphite (CAS 7631-90-5):

Acute Toxicity Data:

Oral LD50 (rat): > 1,600 mg/kg

- Eye irritation (May irritate eyes.): mild

Data for Hydroquinone (CAS 123-31-9):

Acute Toxicity Data:

Oral LD50 (rat): 400 mg/kg

- Oral LD50 (rat): > 375 mg/kg
- Dermal LD50 (guinea pig): > 1,000 mg/kg
- Dermal absorption rate: 1.1 micrograms (s) / cm² / hour
- Skin irritation: slight
- Skin Sensitization (guinea pig): positive
- Eye irritation: moderate

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Mutagenicity/Genotoxicity Data:

Salmonella typhimurium assay (Ames test): negative (in presence and absence of activation)

- Chromosomal aberration assay: negative (in absence of activation)
- Chromosomal aberration assay: positive (in presence of activation)
- Sister chromatid exchange (SCE) assay: positive (in presence and absence of activation)

Definitions for the following section(s): LOEL =lowest-observed-effect level, LOAEL = lowest-observed-adverse-effect, NOAEL = no observed-adverse-effect level, NOEL =no-observed-effect level.

Repeated dose toxicity:

- Dermal (17-day, rat): NOEL; 3800 mg/kg/day
- Dermal (17-day): Lowest observable effect level; 4800 mg/kg/day

Developmental Toxicity Data:

Oral (female rabbit): NOEL for developmental toxicity; 25mg/kg/day

Data for 4-hydroxymethyl-4-methyl-1-phenyl-3-pyrazolidinone (CAS 13047-13-7):

Acute Toxicity Data:

Oral LD50 (rat): 566 mg/kg

- Dermal LD50: > 1,000 mg/kg
- Skin irritation: slight
- Skin irritation: slight exacerbation (repeated skin application)
- Skin Sensitization: slight
- Eye irritation (unwashed eyes): strong
- Eye irritation (washed eyes): slight to moderate

Definitions for the following section(s): LOEL =lowest-observed-effect level, LOAEL = lowest-observed-adverse-effect, NOAEL = no observed-adverse-effect level, NOEL =no-observed-effect level.

Repeated dose toxicity:

- Oral (12-day, rat): NOEL; 88 mg/kg/day
- Oral (12-day, rat): Lowest observable effect level; 440 mg/kg/day (target organ effects: blood, target organ effects: testes)
- Oral (28-day, rat): NOEL; 10 mg/kg/day
- Oral (28-day, rat): Lowest observable effect level; 40 mg/kg/day (target organ effects: blood, target organ effects: testes)

12. Ecological information

The following properties are ESTIMATED from the components of the preparations.

Potential Toxicity:

Toxicity to fish (LC50):	1 - 10 mg/l
Toxicity to daphnia (EC50):	1 - 10 mg/l
Toxicity to algae (IC50):	10 - 100 mg/l
Toxicity to other organisms (EC50):	> 100 mg/l

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Persistence and degradability: Readily biodegradable.

Chemical Oxygen Demand (COD): ca. 712 g/l

Biochemical Oxygen Demand (BOD): ca. 612 g/l

13. Disposal considerations

Discharge, treatment, or disposal may be subject to federal, state, commonwealth, provincial, or local laws. Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

Not regulated for all modes of transportation.

For more transportation information, go to: www.kodak.com/go/ship.

15. Regulatory information

Notification status

Regulatory List	Notification status
TSCA	All listed
DSL	All listed
NDSL	None listed
EINECS	All listed
ELINCS	None listed
NLP	None listed
AICS	All listed
IECS	All listed
ENCS	All listed
ECI	All listed
NZIoC	All listed
PICCS	All listed

"Not all listed" indicates one or more component is either not on the public Inventory or is subject to exemption requirements. If additional information is needed contact Kodak.

Poisons Schedule: 6

Australian Safety and Compensation Council: none

Other regulations

Australia National Model Regulations for the Control of Scheduled Carcinogenic Substances	No components listed
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16. Other information

The data below reflects current legislative requirements whereas the product in your possession may carry a different version of the label depending on the date of manufacture. The actual label information will depend upon the intended use of the product. Australian Safety and Compensation Council labeling appears for commercial/industrial use.

Australian Safety and Compensation Council Labeling:

Contains: Diethanolamine 30 - <60%, Sulphur dioxide 5 - 20%, Hydroquinone 1 - <5%

pH: 6 - 9



Symbol/Indication of Danger:

C: Corrosive
N: Dangerous for the environment

Risk Phrases:

R34: Causes burns.
R20/22: Harmful by inhalation and if swallowed.
R48/22: Harmful: danger of serious damage to health by prolonged exposure if swallowed.
R40: Limited evidence of a carcinogenic effect.
R68: Possible risk of irreversible effects.
R43: May cause sensitization by skin contact.
R50: Very toxic to aquatic organisms.

Safety Phrases:

S24: Avoid contact with skin.
S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37/39: Wear suitable protective clothing, gloves and eye/face protection.
S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S57: Use appropriate container to avoid environmental contamination.

National Health and Medical Research Council Standard for the Uniform Scheduling of Drugs and Poisons Labeling:

POISON
KEEP OUT OF REACH OF CHILDREN
READ SAFETY DIRECTIONS BEFORE OPENING OR USING

Contains: Diethanolamine (366 g/L - 430.5 g/L), Hydroquinone (12.2 g/L - 61.5 g/L)

Warning: Corrosive. WARNING - Vapour may be harmful. Product will irritate the eyes, nose, throat and skin.

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Safety Phrases: Avoid contact with skin or eyes. Avoid breathing dust (or) vapour (or) spray mist.

First aid: For advice, contact a Poisons Information Centre (Australia 13 1126; New Zealand 0800 764 766) or a doctor. If swallowed, do NOT induce vomiting. If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water.

The information contained herein is furnished without warranty of any kind. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers and the protection of the environment. The information relating to the working solution is for guidance purposes only, and is based on correct mixing and use of the product according to instructions.

R-2, S-2, F-1, C-0