

1. Identification

Product identifier KODAK T-MAX Developer

Other means of identification

SDS number PCD 5337

Product code 5050851

Recommended use of the chemical and restrictions on use

Recommended use Photographic processing chemical. (developer/activator).

Recommended restrictions For industrial use only.

Manufacturer/Importer/Supplier/Distributor information

Supplier Kodak Alaris Limited

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2. Hazards identification

GHS classification

Physical hazards Not classified.

Health hazards

Acute toxicity, oral	Category 4
Acute toxicity, inhalation	Category 3
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1
Sensitization, skin	Category 1
Germ cell mutagenicity	Category 2
Carcinogenicity	Category 2
Specific target organ toxicity following repeated exposure	Category 2 (blood, kidney, liver)

Environmental hazards Hazardous to the aquatic environment, acute hazard Category 1

GHS label elements, including precautionary statements

Pictograms



Signal word Danger

Hazard statements May cause damage to organs through prolonged or repeated exposure by ingestion. Harmful if swallowed. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Causes serious eye damage. Toxic if inhaled. Suspected of causing genetic defects. Suspected of causing cancer. May cause damage to organs (blood, kidney, liver) through prolonged or repeated exposure. Very toxic to aquatic life.

Precautionary statements

Prevention Obtain special instructions before use. Do not breathe mist or vapour. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.

Response IF SWALLOWED: rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Storage Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards which do not result in classification None known.

Supplemental information 19.3 % of the mixture consists of component(s) of unknown acute oral toxicity.

3. Composition/information on ingredients

Substance or mixture	Mixture			
Chemical name	Common name and synonyms	CAS Number	Concentration (%)	
Diethanolamine		111-42-2	30 - 35	
Sulphur dioxide		7446-09-5	15 - 20	
Hydroquinone		123-31-9	1 - 5	
Sodium hydrogensulfite		7631-90-5	1 - 5	
4-hydroxymethyl-4-methyl-1-phenyl-3-pyrazolidinone		13047-13-7	0.1 - < 1	

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a POISON CENTRE or doctor/physician.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water. Call a physician or poison control centre immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control centre immediately.
Ingestion	Call a physician or poison control centre immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Most important symptoms/effects, acute and delayed	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Coughing. Oedema. Jaundice. Prolonged exposure may cause chronic effects.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Water spray. Alcohol resistant foam. Dry chemicals. Carbon dioxide (CO ₂).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed. Carbon oxides. Nitrogen oxides (NO _x). Sulphur oxides.
Fire fighting equipment/instructions	Move containers from fire area if you can do so without risk.
Special protective equipment and precautions for firefighters	Wear self-contained breathing apparatus and protective clothing. Fire or excessive heat may produce hazardous decomposition products.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Can decompose at elevated temperatures.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapour. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

Methods and materials for containment and cleaning up

Use water spray to reduce vapours or divert vapour cloud drift. Prevent entry into waterways, sewer, basements or confined areas.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the SDS.

7. Handling and storage

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist or vapour. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. When using, do not eat, drink or smoke. Should be handled in closed systems, if possible. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

Singapore. PELs. (Workplace Safety and Health (Permissible Exposure Levels of Toxic Substances) Order)

Components	Type	Value
Diethanolamine (CAS 111-42-2)	TWA	2 mg/m3 0.46 ppm
Hydroquinone (CAS 123-31-9)	TWA	2 mg/m3
Sodium hydrogensulfite (CAS 7631-90-5)	TWA	5 mg/m3
Sulphur dioxide (CAS 7446-09-5)	STEL	13 mg/m3 5 ppm
	TWA	5.2 mg/m3 2 ppm

Control parameters/Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Diethanolamine (CAS 111-42-2)	TWA	1 mg/m3	Inhalable fraction and vapor.
Hydroquinone (CAS 123-31-9)	TWA	1 mg/m3	
Sodium hydrogensulfite (CAS 7631-90-5)	TWA	5 mg/m3	
Sulphur dioxide (CAS 7446-09-5)	STEL	0.25 ppm	

Exposure guidelines

US ACGIH Threshold Limit Values: Skin designation

Diethanolamine (CAS 111-42-2)

Can be absorbed through the skin.

Appropriate engineering control measures

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection

Wear appropriate chemical resistant gloves.

Other

Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Observe any medical surveillance requirements. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance

Physical state	Liquid.
Form	Liquid.
Colour	Clear.
Odour	Amine-like.
Odour threshold	Not available.
pH	8.3 - 8.8
Melting point/freezing point	Not available.
Initial boiling point and boiling range	> 100 °C (> 212 °F)
Flash point	does not flash
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit – upper (%)	Not available.
Vapour pressure	18 mm Hg
Vapour density	0.6
Relative density	1.21
Solubility(ies)	
Solubility (water)	Complete
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other data	
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerisation does not occur.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong acids. Strong oxidising agents. Aluminium. Ammonia.
Hazardous decomposition products	Sulphur oxides. Nitrogen oxides (NOx).

11. Toxicological information

Information on likely routes of exposure

Inhalation	In contact with strong acids or if heated, sulphites may liberate sulphur dioxide gas. Harmful if inhaled. Sulphur dioxide gas is irritating to the respiratory tract. Some asthmatics or hypersensitive individuals may experience difficulty breathing.
Skin contact	Causes severe skin burns. May cause an allergic skin reaction.
Eye contact	Causes serious eye damage.
Ingestion	Harmful if swallowed. Some asthmatics or sulfite-sensitive individuals may experience wheezing, chest tightness, stomach upset, hives, faintness, weakness and diarrhea.

Acute toxicity		Toxic if inhaled. Harmful if swallowed.	
Components	Species	Test results	
Diethanolamine (CAS 111-42-2)			
Acute			
Dermal			
LD50	Rabbit	12983.88 mg/kg	11.9 ml/kg
Oral			
LD50	Rat	710 mg/kg	
Hydroquinone (CAS 123-31-9)			
Acute			
Dermal			
LD50	Guinea pig	> 1000 mg/kg	
	Rat	> 900 mg/kg	
Oral			
LD50	Rat	320 mg/kg	
Sodium hydrogensulfite (CAS 7631-90-5)			
Acute			
Dermal			
LD50	Rat	2000 mg/kg	
Oral			
LD50	Rat	2 g/kg	
Sulphur dioxide (CAS 7446-09-5)			
Acute			
Inhalation			
LC50	Rat	2520 ppm, 1 Hours	1260 ppm, 4 Hours
Symptoms	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Coughing. Oedema. Jaundice.		
Skin corrosion/irritation	Causes severe skin burns and eye damage.		
Serious eye damage/eye irritation	Causes serious eye damage.		
Respiratory or skin sensitisation			
ACGIH sensitisation			
Hydroquinone (CAS 123-31-9)	Dermal sensitization		
Respiratory sensitisation	Not a respiratory sensitizer.		
Skin sensitisation	May cause an allergic skin reaction.		
Germ cell mutagenicity	Suspected of causing genetic defects.		
Carcinogenicity	Suspected of causing cancer.		
IARC Monographs. Overall Evaluation of Carcinogenicity			
Diethanolamine (CAS 111-42-2)	2B Possibly carcinogenic to humans.		
Hydroquinone (CAS 123-31-9)	3 Not classifiable as to carcinogenicity to humans.		
Sodium hydrogensulfite (CAS 7631-90-5)	3 Not classifiable as to carcinogenicity to humans.		
Sulphur dioxide (CAS 7446-09-5)	3 Not classifiable as to carcinogenicity to humans.		
Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.		
Specific target organ toxicity - single exposure	Not classified.		
Specific target organ toxicity - repeated exposure	May cause damage to organs (blood, kidney, liver) through prolonged or repeated exposure.		
Aspiration hazard	Not an aspiration hazard.		
Chronic effects	May cause damage to organs through prolonged or repeated exposure. Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.		

12. Ecological information

Ecotoxicity Very toxic to aquatic life.

Components		Species	Test results
Diethanolamine (CAS 111-42-2)			
Aquatic			
Crustacea	EC50	Water flea (Ceriodaphnia dubia)	61.8 - 86.04 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas)	100 mg/l, 96 hours
Hydroquinone (CAS 123-31-9)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	0.12 - 0.15 mg/l, 48 hours
Fish	LC50	Rainbow trout, donaldson trout (Oncorhynchus mykiss)	0.044 mg/l, 96 hours

Persistence and degradability Readily biodegradable.

Bioaccumulative potential

Octanol/water partition coefficient log Kow

Diethanolamine	-1.43
Hydroquinone	0.59

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal methods/information Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

Special precautions Dispose in accordance with all applicable regulations.

14. Transport information

ADR

UN number	UN3082
UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s. (Hydroquinone)
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Label(s)	9
Hazard No. (ADR)	90
Tunnel restriction code	E
Packing group	III
Environmental hazards	No.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
y	Limited quantity

RID

UN number	UN3082
UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s.
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Label(s)	9
Packing group	III
Environmental hazards	No.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

ADN

UN number	UN3082
UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s.
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Label(s)	9
Packing group	III
Environmental hazards	No.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IATA

UN number	UN3082
UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s. (Hydroquinone)
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Packing group	III
Environmental hazards	Yes
ERG Code	9L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.
Forbidden for Air Shipment - not packaged according to DG regulation	

IMDG

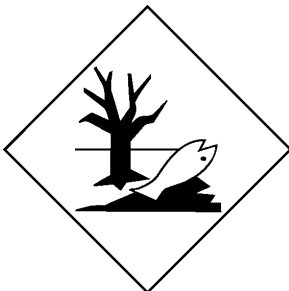
UN number	UN3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Hydroquinone), MARINE POLLUTANT
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	Yes
EmS	F-A, S-F
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
y	Limited Quantity

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not established.

ADN; ADR; IATA; IMDG; RID



Marine pollutant



General information IMDG Regulated Marine Pollutant.

15. Regulatory information

Safety, health and environmental regulations specific for the product in question

Singapore. Controlled Narcotic Drugs (Misuse of Drugs Act, First Schedule, Part I, II & III)

Not regulated.

Singapore. Controlled Specified Drugs (Misuse of Drugs Act, Fourth Schedule)

Not regulated.

Singapore. Prior Informed Consent (PIC) Substances (Environment Protection and Management Act, 2nd Schedule, Part 1, Jul. 1, 2013)

Not regulated.

Chemical Weapons Prohibition (Act)

Not applicable.

Environmental Protection and Management (Hazardous Substances) Regulations

Not applicable.

Environmental Public Health Act

Not applicable.

International regulations

Montreal Protocol

Not applicable.

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Kyoto protocol

Not applicable.

Basel Convention

Not applicable.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

References	Not available.
Issued by	Not available.
Prepared by	Not available.
Disclaimer	Kodak Alaris cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.
Issue date	15-March-2018
Revision date	10-July-2018
Key/legend	Not applicable.
Revision information	Accidental release measures: Methods and materials for containment and cleaning up Physical & Chemical Properties: Multiple Properties GHS: Qualifiers