Safety Data Sheet

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

Product name: HYDROQUINONE, PHOTO GRADE, 100KG DR, Part E

Product code: 10000356 - Part E

Synonyms: PCD 10350

Relevant identified uses of the substance or mixture and uses advised against:
Identified uses: photographic processing chemical. For industrial use only.

Supplier: EASTMAN KODAK COMPANY, 343 State Street, Rochester, New York 14650

IN EMERGENCY, telephone: 1-800-424-9300 or +1 703-527-3887.

For further information about this product, call (800) 242-2424.

2. Hazards identification

Classification of the chemical in accordance with paragraph (d) of 29 CFR 1910.1200:

Hazard class	Hazard category	Route of exposure
Combustible Dust		--
Acute toxicity	Category 4	--
Serious eye damage	Category 1	--
Skin sensitisation	Category 1	--
Germ cell mutagenicity	Category 2	--
Carcinogenicity	Category 2	--
Acute aquatic toxicity	Category 1	--
Chronic aquatic toxicity	Category 1	--

GHS-Labelling

Contains:
Hydroquinone (123-31-9)

Symbol(s):

Signal word: Danger

Hazard statements:

May form combustible dust concentrations in air Harmful if swallowed. Causes serious eye damage. May cause an allergic skin reaction. Suspected of causing genetic defects. Suspected of causing cancer. Very toxic to aquatic life with long lasting effects.

Precautionary statements:

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. Wash skin thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/ protective clothing/ eye protection/ face protection. Avoid release to the environment.

Response: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician. IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth. IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/ attention. Take off contaminated clothing and wash before reuse. IF exposed or concerned: Get medical advice/ attention. Collect spillage.

Storage: Store locked up.

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

HMIS III Hazard Ratings: Health - 3*, Flammability - 1, Physical Hazard - 0

NFPA Hazard Ratings: Health - 3, Flammability - 1, Instability - 0

NOTE: HMIS III and NFPA 704 (2007) hazard indexes involve data review and interpretation that may vary among companies. They are intended only for rapid, general identification of the magnitude of the potential hazards. To adequately address safe handling, ALL information in this MSDS must be considered.

3. Composition/information on ingredients

Weight percent	Components - (CAS-No.)
100	Hydroquinone (123-31-9)

4. First aid measures

Inhalation: If symptomatic, move to fresh air. Get medical attention if symptoms persist.

Eyes: Immediately flush the contaminated eye(s) with water for at least 60 minutes, while holding the eyelid(s) open. If a contact lens is present, DO NOT delay irrigation or attempt to remove the lens. Neutral saline solution may be used as soon as it is available. DO NOT INTERRUPT FLUSHING. Contact a physician or poison control center immediately. Continue flushing the eye(s) until the physician advises to stop. If necessary, continue flushing during transport to an emergency care facility.

Skin: Wash off immediately with soap and plenty of water. Get medical attention if symptoms occur. Remove contaminated clothing and shoes. Destroy or thoroughly clean contaminated shoes. Wash contaminated clothing before reuse.

Ingestion: If swallowed, only induce vomiting as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

Most important symptoms and effects, both acute and delayed: No information available.

Indication of any immediate medical attention and special treatment needed:

Treatment: No information available.

5. Firefighting measures

Extinguishing Media: Water mist Carbon dioxide (CO2) Dry chemical Do NOT use water jet.

Special hazards arising from the substance or mixture
Hazardous Combustion Products: Carbon oxides

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

Unusual Fire and Explosion Hazards: Dust may form explosive mixture in air. Fire or high temperatures may cause decomposition.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Refer to protective measures listed in sections 7 and 8.

Methods and materials for containment and cleaning up: Remove all sources of ignition. Avoid generation of dust. Avoid dispersal of dust in the air (i.e. clearing dust from surfaces with compressed air). Shovel into suitable container for disposal. Non-sparking tools should be used. Clean surface thoroughly to remove residual contamination. Prevent runoff from entering drains, sewers, or streams.

Environmental precautions: No information available.

7. Handling and storage

Precautions for safe handling

Personal precautions: Avoid contact with eyes, skin, and clothing. Avoid breathing dust. Use only with adequate ventilation. Wash thoroughly after handling. Do not eat, drink or smoke when using this product.

Prevention of Fire and Explosion: Dust may form explosive mixture in air. Avoid dust formation. Use only with adequate ventilation. Keep away from heat and sources of ignition. Refer to NFPA 654, "Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids." Keep from contact with oxidizing materials.

Ventilation: Match ventilation rates to conditions of use so as not to exceed any applicable exposure limits (see Section 8).

Conditions for safe storage, including any incompatibilities: Keep in a dry, cool and well-ventilated place. Cool conditions (5 - 30°C). Keep container tightly closed. Keep away from food, drink and animal feeding stuffs. Keep away from incompatible substances (see Incompatibility section.)

8. Exposure controls/personal protection

Occupational exposure controls

Chemical Name	Regulatory List	Value Type	Value
Hydroquinone	ACGIH	Time weighted average	1 mg/m3
Hydroquinone	OSHA	Time weighted average	2 mg/m3

Appropriate engineering controls: 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.

Individual protection measures, such as personal protective equipment

Eye protection: Wear safety glasses with side shields (or goggles) and a face shield.

Hand protection: Wear protective gloves/ protective clothing.

Respiratory protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits, an approved respirator must be worn. If respirators are used, a program should be instituted to assure compliance with applicable federal, state, commonwealth, provincial, or local laws and regulations.

9. Physical and chemical properties

Physical form: solid (crystalline)

Colour: white Colorless

Odour: odourless

Specific gravity: 1.33

Vapour pressure (at 132.0 °C (269.6 °F)): 1.3 mbar (1.0 mm Hg)

Vapour density: 3.8

Boiling point/boiling range: 285 - 287 °C (545.0 - 548.6 °F)

Melting point/range: 170 - 171 °C (338.0 - 339.8 °F)

Water solubility: Moderate (7 g/l at 25 °C)

pH: 4.1 - 4.7

Flash point: 165.00 °C (329.0 °F) (closed cup)

Evaporation rate: No data available

Flammability (Solid; gas): No data available

Upper explosion limit: No data available

Lower explosion limit: No data available

Partition coefficient: n-octanol/water: log Pow= 0.5

Auto-ignition temperature: 499.0 °C (930.2 °F)

Decomposition temperature: No data available

Viscosity: No data available

Explosive properties: No data available

Oxidizing properties: No data available

10. Stability and reactivity

Reactivity: No data available

Chemical stability: Stable under normal conditions.

No exotherm to 420 °C byDSC

Possibility of hazardous reactions: Hazardous polymerisation does not occur.

Conditions to avoid: Heat, flames, sparks, and other sources of ignition.

Incompatible materials: Strong oxidizing agents, Strong bases, Combustible material, Ammonia.

Hazardous decomposition products: Carbon oxides

11. Toxicological information

Effects of Exposure

General advice: Suspected of causing cancer. Suspected of causing genetic defects.

Inhalation: Airborne dust/mist/vapor may be irritating.

Eyes: Causes serious eye damage.

Skin: May cause an allergic skin reaction.

Ingestion: Harmful if swallowed.

Acute Toxicity Data:
Oral LD50 (male Rat): 400 mg/kg

- Oral LD50 (male Mouse): 100 - 200 mg/kg
- Oral LD50 (Rat): 298 mg/kg
- Dermal LD50 (Guinea pig): > 1,000 mg/kg
- Dermal (Rat): > 4,800 mg/kg

- Dermal LD50 (Rabbit): 74,800 mg/kg
- Skin irritation: slight
- Sensitisation (Guinea pig): positive
- Eye irritation: moderate

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 observed effect level; 4800 mg/kg/day

Developmental Toxicity Data:

- Oral (female Rabbit): NOEL for developmental toxicity; 25mg/kg/day
- Oral (female Rat): NOAEL for developmental toxicity; mg/kg/day

Carcinogenicity

American Conference of Governmental Industrial Hygienists (ACGIH):	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans: Hydroquinone
International Agency for Research on Cancer (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.
U.S. National Toxicology Program (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.
U.S. Occupational Safety and Health Administration (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.
California Prop. 65	This product does not contain any chemicals known to State of

California to cause cancer, birth defects, or any other reproductive harm.

12. Ecological information

Data for this material were used to estimate its environmental impact.

Potential Toxicity:

Toxicity to fish (LC50):	Pimephales promelas (fathead minnow): 0.044 mg/l (Exposure time: 96 hr) (No information available.)
Toxicity to fish (LC50):	Oncorhynchus mykiss (rainbow trout): 0.044 mg/l (Exposure time: 96 hr)
Toxicity to fish (LC50):	Pimephales promelas (fathead minnow): 0.1 - 0.18 mg/l (Exposure time: 96 hr)
Toxicity to fish (LC50):	Danio rerio (zebra fish): 0.17 mg/l (Exposure time: 96 hr)
Toxicity to daphnia (EC50):	Daphnia (water flea): 0.09 mg/l (Exposure time: 24 hr) (No information available.)
Toxicity to daphnia (NOEC):	Daphnia (water flea): 0.04 mg/l (Exposure time: 24 hr) (No information available.)
Toxicity to daphnia (EC50):	Daphnia magna (Water flea): 0.29 mg/l (Exposure time: 48 hr)
Toxicity to algae (EC50):	Pseudokirchneriella subcapitata: 0.335 mg/l (Exposure time: 72 hr)
Toxicity to other organisms (EC50):	100 mg/l
Persistence and degradability:	Not readily biodegradable.
Chemical Oxygen Demand (COD):	1.83 - 1.90 g/g
Biochemical Oxygen Demand (BOD):	0.48 - 1.1 g/g

Bioaccumulative potential

Partition coefficient: n-octanol/water log Pow= 0.5

Mobility in soil

No information available.

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

The information below is provided to assist in documentation. It represents the dangerous goods classification before any regulatory exceptions are taken (e.g. "limited quantity") and therefore may not represent the final classification. The final classification as it pertains to the product packaging configuration (including labeling, marking, and exceptions) may be obtained via the Dangerous Goods Worksheet which can be found at www.kodak.com/go/ship.

IATA:	UN number:	UN3077
	Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (hydroquinone)
	Class:	9
	Packaging group:	III
	Marine Pollutant status:	Marine pollutant
IMDG:	UN number:	UN3077
	Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (hydroquinone)
	Class:	9
	Packaging group:	III
	Marine Pollutant status:	Marine pollutant
	Marine Pollutant(s):	hydroquinone
US DOT:	UN number:	UN3077
	Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (hydroquinone)
	Class:	9
	Packaging group:	III
	Marine Pollutant status:	Marine pollutant
	Reportable Quantity:	hydroquinone
	Reportable Quantity:	100 lb

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
TCSI	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.

Other regulations

U.S. - CERCLA/SARA (40 CFR § 302.4 Designation of hazardous substances):	Hydroquinone
U.S. - CERCLA/SARA - Section 302 (40 CFR § 355 Appendices A and B - The List of Extremely Hazardous Substances and Their Threshold Planning Quantities):	Hydroquinone
U.S. - CERCLA/SARA - Section 313 (40 CFR § 372.65 Toxic Chemical Release Reporting):	Hydroquinone
U.S. - California - 8 CCR Section 339 - Director's List of Hazardous Substances:	Hydroquinone
U.S. - California - 8 CCR Section 5200-5220 - Specifically Regulated Carcinogens:	No components found on the California Specifically Regulated Carcinogens List.

U.S. - California - 8 CCR Section 5203 Carcinogens:	No components found on the California Section 5203 Carcinogens List.
U.S. - California - 8 CCR Section 5209 Carcinogens:	No components found on the California Section 5209 Carcinogens List.
U.S. - Massachusetts - General Law Chapter 111F (MGL c 111F) - Hazardous Substances Disclosure by Employers (a.k.a. Right to Know Law):	Hydroquinone
U.S. - Minnesota Employee Right-to-Know (5206.0400, Subpart 5. List of Hazardous Substances):	Hydroquinone
U.S. - New Jersey - Worker and Community Right to Know Act (N.J.S.A. 34:5A-1):	Hydroquinone
U.S. - Pennsylvania - Part XIII. Worker and Community Right-to-Know Act (Chapter 323 Hazardous Substance List, Appendix A):	Hydroquinone

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.

US/Canadian Label Statements:

HYDROQUINONE, PHOTO GRADE, 100KG DR, Part E

Contains:
Hydroquinone (123-31-9)

Symbol(s):

Signal word: Danger

Hazard statements:

May form combustible dust concentrations in air Harmful if swallowed. Causes serious eye damage. May cause an allergic skin reaction. Suspected of causing genetic defects. Suspected of causing cancer. Very toxic to aquatic life with long lasting effects.

Precautionary statements:

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. Wash skin thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/ protective clothing/ eye protection/ face protection. Avoid release to the environment.

Response: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician. IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth. IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/ attention. Take off contaminated clothing and wash before reuse. IF exposed or concerned: Get medical advice/ attention. Collect spillage.

Storage: Store locked up.

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

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.
