

P-PHENYLDIAMINE

GHS Safety Data Sheet

Version No:3

Page 1 of 13

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

P-PHENYLENEDIAMINE

OTHER NAMES

C₆H₈N₂, C₆H₄(NH₂)₂, p-aminoaniline, "Durafur Black R", 4-aminoaniline, "Fouramine D", p-benzenediamine, "Fourrine D", "phenylene diamine", "1, 4-benzenediamine", "Fourrine 1", "1, 4-diaminobenzene"

PROPER SHIPPING NAME

PHENYLENEDIAMINES (o-, m-, p-)

PRODUCT USE

Azo dye intermediate, photographic developing agent, photochemical measurements, intermediate in manufacture of antioxidants and accelerators for rubber, synthetic fibres, laboratory reagent, dyeing hair and fur.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,
248, WORLI,
MUMBAI- 400030.INDIA.

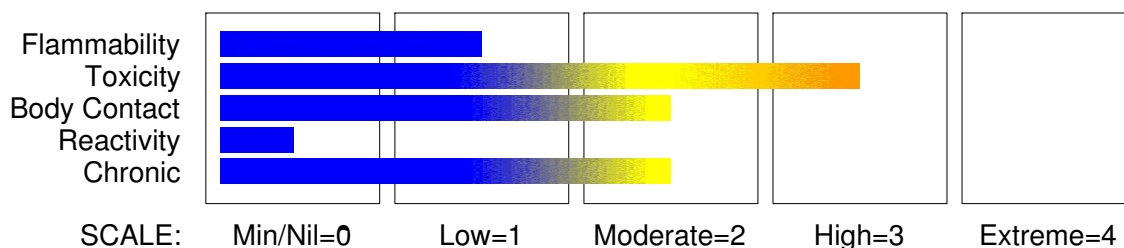
technical@sdfine.com

Telephone: 91- 22- 24959898

Telephone: 91- 22- 24959899

Fax: 91- 22- 24937232

HAZARD RATINGS



continued...

P-PHENYLDIAMINE

GHS Safety Data Sheet

Version No:3

Page 2 of 13

Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Acute Toxicity (Dermal) Category 3
Acute Toxicity (Inhalation) Category 3
Acute Toxicity (Oral) Category 3
Chronic Aquatic Hazard Category 1
Eye Irritation Category 2A
Respiratory Sensitizer Category 1
Skin Corrosion/Irritation Category 3
Skin Sensitizer Category 1



EMERGENCY OVERVIEW

HAZARD

DANGER

Determined by using GHS criteria:

H331 H311 H301 H316 H319 H334 H317 H410

Toxic if inhaled

Toxic in contact with skin

Toxic if swallowed

Causes mild skin irritation

Causes serious eye irritation

May cause allergic or asthmatic symptoms or breathing difficulties if inhaled

May cause allergic skin reaction

Very toxic to aquatic life with long lasting effects

PRECAUTIONARY STATEMENTS

Prevention

In case of inadequate ventilation wear respiratory protection.

Do not breathe dust/fume/gas/mist/vapours/spray.

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wear protective gloves/clothing

Do not eat, drink or smoke when using this product.

Contaminated clothing should not be allowed out of the workplace.

Use only outdoors or in a well ventilated area.

Wash hands thoroughly after handling.

Response

Wash contaminated clothing before reuse.

Keep container tightly closed.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.

If experiencing respiratory symptoms call a POISON CENTER or doctor/physician.

If skin irritation or rash occurs, seek medical advice/attention.

continued...

P-PHENYLDIAMINE

Section 2 - HAZARDS IDENTIFICATION

If skin irritation occurs, seek medical advice/attention.
Wear eye/face protection.
If eye irritation persists, get medical advice/attention.
IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
Call a POISON CENTER or doctor/physician if you feel unwell.
Remove/Take off immediately all contaminated clothing
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
Specific treatment: refer to Label or MSDS.
Immediately call a POISON CENTER or doctor/physician.
IF ON SKIN: Gently wash with plenty of soap and water.
Wash/Decontaminate removed clothing before reuse.

Storage

Store locked up.

Disposal

Dispose of contents and container in accordance with relevant legislation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
p- phenylenediamine	106-50-3	> 99

Section 4 - FIRST AID MEASURES

SWALLOWED

For advice, contact a Poisons Information Centre or a doctor.
· IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.
· For advice, contact a Poisons Information Centre or a doctor.
Where Medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:
· Induce vomiting with fingers down the back of the of the throat, ONLY IF CONSCIOUS.
· Lean patient forward or place on left side (head-down position if possible) to maintain open airway and prevent aspiration.
NOTE: Wear a protective glove when inducing vomiting by mechanical means.
· In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.
· If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the MSDS should be provided.
Further action will be the responsibility of the medical specialist.
· If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the MSDS.

EYE

If this product comes in contact with the eyes:
· Wash out immediately with fresh running water.
· Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
· If pain persists or recurs seek medical attention.
· Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If skin contact occurs:
· Immediately remove all contaminated clothing, including footwear.

P-PHENYLDIAMINE

GHS Safety Data Sheet

Version No:3

Page 4 of 13

Section 4 - FIRST AID MEASURES

- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

In case of burns:

- Quickly immerse affected area in cold running water for 10 to 15 minutes.
- Bandage lightly with a sterile dressing. Treat for shock if required.
- Lay patient down. Keep warm and rested.
- Transport to hospital, or doctor.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor.

NOTES TO PHYSICIAN

Treat symptomatically.

Wherever histamine-like effects predominate, a therapeutic trial with an antihistaminic is suggested. Not likely to induce significant methaemoglobinaemia.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- There is no restriction on the type of extinguisher which may be used.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
 - Wear full body protective clothing with breathing apparatus.
 - Prevent, by any means available, spillage from entering drains or water course.
 - Use water delivered as a fine spray to control fire and cool adjacent area.
 - Avoid spraying water onto liquid pools.
 - DO NOT approach containers suspected to be hot.
 - Cool fire exposed containers with water spray from a protected location.
 - If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

Pollutant.

- Combustible.
- Slight fire hazard when exposed to heat or flame.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- On combustion, may emit toxic fumes of carbon monoxide (CO).
- May emit acrid smoke.
- Mists containing combustible materials may be explosive.

Other combustion products include:

carbon dioxide (CO₂) and nitrogen oxides (NO_x).

Avoid creating dust - may present dust explosion hazard. Dry dust can be electrostatically charged by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport. Build-up of electrostatic charge may be prevented by grounding.

Personal Protective Equipment

Breathing apparatus.

Gas tight chemical resistant suit.

continued...

P-PHENYLDIAMINE

GHS Safety Data Sheet

Version No:3

Page 5 of 13

Section 5 - FIRE FIGHTING MEASURES

Limit exposure duration to 1 BA set 30 mins.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Control personal contact by using protective equipment.
- Use dry clean up procedures and avoid generating dust.
- Place in a suitable labelled container for waste disposal.

MAJOR SPILLS

Pollutant

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water courses.
- No smoking, naked lights or ignition sources.
- Increase ventilation.
- Stop leak if safe to do so.
- Water spray or fog may be used to disperse / absorb vapour.
- Contain or absorb spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
- If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

p-phenylenediamine 25 mg/m³

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

p-phenylenediamine 0.5 mg/m³

other than mild, transient adverse effects without perceiving a clearly defined odour is:

p-phenylenediamine 0.3 mg/m³

The threshold concentration below which most people will experience no appreciable risk of health effects:

p-phenylenediamine 0.1 mg/m³

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

Very Toxic (T+)	>= 0.1%	Toxic (T)	>= 3.0%
R50	>= 0.25%	Corrosive (C)	>= 5.0%
R51	>= 2.5%		
else	>= 10%		

continued...

P-PHENYLDIAMINE

GHS Safety Data Sheet

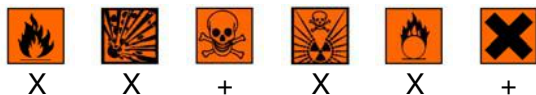
Version No:3

Page 6 of 13

Section 6 - ACCIDENTAL RELEASE MEASURES

where percentage is percentage of ingredient found in the mixture

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+: May be stored together
O: May be stored together with specific precautions
X: Must not be stored together

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of overexposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- DO NOT allow material to contact humans, exposed food or food utensils.
- Avoid smoking, naked lights or ignition sources.
- When handling, DO NOT eat, drink or smoke.
- Avoid contact with incompatible materials.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Working clothes should be laundered separately. Launder contaminated clothing before re-use.
- Use good occupational work practice.
- Observe manufacturer's storing/handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

- Glass container.
 - Plastic drum.
 - Polyethylene or polypropylene container.
 - Multi-ply woven plastic or paper bag with sealed plastic liner
- NOTE: Bags should be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding or collapse.
- Metal can or drum
 - Packaging as recommended by manufacturer.
 - Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY

Avoid storage with strong oxidants, acids, acid chlorides, acid anhydrides and chloroformates.

STORAGE REQUIREMENTS

- Protect from light.
- Store in original containers.
- Keep containers securely sealed.

continued...

P-PHENYLDIAMINE

GHS Safety Data Sheet

Version No:3

Page 7 of 13

Section 7 - HANDLING AND STORAGE

- No smoking, naked lights or ignition sources.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- p- phenylenediamine: CAS:106- 50- 3 CAS:56481- 76- 6

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m3)	Revised IDLH Value (ppm)
p- phenylenediamine	25	

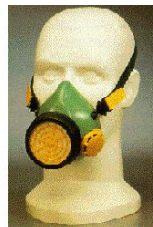
MATERIAL DATA

p-Phenylenediamine is a known dermal and possible respiratory sensitiser in humans and cause local dermatitis, urticaria, asthma and inflammatory reactions of the respiratory tract. Lachrymation, opthalmia and permanent blindness after eye contact have been described.

Topical applications of (oxidised) p-phenylenediamine to rats has produced local skin tumours at the site of application or may cause tumours distant from the site, especially of the mammary gland of female rats.

Exposure at or below the recommended level is thought to provide protection from respiratory and skin sensitisation and to protect against blood dyscrasia and excess risk of occupational cancer. Even though this limit may be sufficiently low to minimise the number of people who may become sensitised it may not be low enough to prevent exacerbation of pre-existing asthma. A skin notation was deleted in 1991 because there was no definitive data to demonstrate that absorption of the substance through the skin produced systemic damage.

PERSONAL PROTECTION



EYE

- Safety glasses with side shields; or as required,
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC

continued...

P-PHENYLDIAMINE

GHS Safety Data Sheet

Version No:3

Page 8 of 13

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

Wear chemical protective gloves, eg. PVC.
Wear safety footwear.

OTHER

- Overalls.
- Eyewash unit.
- Barrier cream.
- Skin cleansing cream.

Ensure there is ready access to a safety shower.

RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	AK P1 Air- line*	- -	AK PAPR- P1 -
50 x ES	Air- line**	AK P2	AK PAPR- P2
100 x ES	-	AK P3	-
		Air- line*	-
100+ x ES	-	Air- line**	AK PAPR- P3

* - Negative pressure demand ** - Continuous flow.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

For further information consult your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

Use in a well-ventilated area.

Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection.

An approved self contained breathing apparatus (SCBA) may be required in some situations.

Provide adequate ventilation in warehouse or closed storage area. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25- 0.5 m/s (50- 100 f/min.)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5- 1 m/s (100- 200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1- 2.5 m/s (200- 500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5- 10 m/s (500- 2000 f/min.)

Within each range the appropriate value depends on:

continued...

P-PHENYLDIAMINE

GHS Safety Data Sheet

Version No:3

Page 9 of 13

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Lower end of the range

- 1: Room air currents minimal or favourable to capture
- 2: Contaminants of low toxicity or of nuisance value only.
- 3: Intermittent, low production.
- 4: Large hood or large air mass in motion

Upper end of the range

- 1: Disturbing room air currents
- 2: Contaminants of high toxicity
- 3: High production, heavy use
- 4: Small hood- local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

White to light purple crystals or powder. Oxidises on standing in air to purple and black. Affected by light.
Soluble in alcohol, ether and 100 parts water.
Bulk shipments are molten. Presence of unreacted material in rubber accelerators has caused sensitisation, allergic responses.

PHYSICAL PROPERTIES

Solid.
Does not mix with water.
Sinks in water.

Molecular Weight: 108.16
Melting Range (°C): 141- 147
Solubility in water (g/L): Partly miscible
pH (1% solution): Not applicable
Volatile Component (%vol): Not available
Relative Vapour Density (air=1): 3.71
Lower Explosive Limit (%): Not available.
Autoignition Temp (°C): Not available.
State: Divided solid

Boiling Range (°C): 267
Specific Gravity (water=1): >1
pH (as supplied): Not applicable
Vapour Pressure (kPa): Very low @ 20 C
Evaporation Rate: Not available
Flash Point (°C): 155
Upper Explosive Limit (%): Not available.
Decomposition Temp (°C): Not available
Viscosity: Not available

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

continued...

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual.

EYE

Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals.

Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.

SKIN

Skin contact with the material may produce toxic effects; systemic effects may result following absorption.

Limited evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.

Toxic effects may result from skin absorption.

The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling the epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.

INHALED

The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation, of the material, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.

CHRONIC HEALTH EFFECTS

On the basis, primarily, of animal experiments, concern has been expressed by at least one classification body that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment.

Limited evidence shows that inhalation of the material is capable of inducing a sensitisation reaction in a significant number of individuals at a greater frequency than would be expected from the response of a normal population.

Pulmonary sensitisation, resulting in hyperactive airway dysfunction and pulmonary allergy may be accompanied by fatigue, malaise and aching. Significant symptoms of exposure may persist for extended periods, even after exposure ceases. Symptoms can be

continued...

P-PHENYLDIAMINE

Section 11 - TOXICOLOGICAL INFORMATION

activated by a variety of nonspecific environmental stimuli such as automobile exhaust, perfumes and passive smoking.

Practical experience shows that skin contact with the material is capable either of inducing a sensitisation reaction in a substantial number of individuals, and/or of producing a positive response in experimental animals.

Principal routes of exposure are by accidental skin and eye contact and inhalation of generated dusts.

Suspected as a cause of bladder cancers in "aniline" workers.

Long term exposure to p-phenylenediamine may produce mucosal irritation, asthma, oedema and liver damage. "Ursol" asthma and persistent irritation of the upper airways of workers in the fur industry has been described. In 30% of workers employed in the dying of skins, p-phenylenediamine caused skin lesions, eczematous rashes, irritation of the upper respiratory tract and occasional asthma attacks. One skin dyer developed severe bronchial asthma after working with "Ursol" for one year; the asthma attacks always developed half an hour after work. Long term dermal exposure to p-phenylenediamine in hair dyes caused such severe damage of the kidneys and other organs that it resulted in the more or less rapid death of several persons.

In vitro, after metabolic activation, p-phenylenediamine is mutagenic; in the Ames test the mutagenicity is increased by the addition of hydrogen peroxide (a chemical commonly used by hair dressers). There is no evidence that p-phenylenediamine has embryotoxic or teratogenic potential. Present data does not dispel the suspicion that p-phenylenediamine has carcinogenic potential.

TOXICITY AND IRRITATION

TOXICITY

Oral (rat) LD50: 80 mg/kg

Dermal (rabbit) LDLo: 5000 mg/kg

IRRITATION

Skin (human): 250 mg/24h

Skin (rabbit): 12.5 mg/24h - Mild

Skin (rabbit): 250 mg/24h - Moderate

The substance is classified by IARC as Group 3:

NOT classifiable as to its carcinogenicity to humans.

Evidence of carcinogenicity may be inadequate or limited in animal testing.

Section 12 - ECOLOGICAL INFORMATION

Hazardous Air Pollutant:	Yes
Fish LC50 (96hr.) (mg/l):	5.74 (48hr)
Half- life Soil - High (hours):	672
Half- life Soil - Low (hours):	168
Half- life Air - High (hours):	2.8
Half- life Air - Low (hours):	0.28
Half- life Surface water - High (hours):	672
Half- life Surface water - Low (hours):	31
Half- life Ground water - High (hours):	1344
Half- life Ground water - Low (hours):	336
Aqueous biodegradation - Aerobic - High (hours):	672
Aqueous biodegradation - Aerobic - Low (hours):	168
Aqueous biodegradation - Anaerobic - High (hours):	2688
Aqueous biodegradation - Anaerobic - Low (hours):	672
Photolysis maximum light absorption - High (nano- m):	308
Photooxidation half- life water - High (hours):	1740
Photooxidation half- life water - Low (hours):	31
Photooxidation half- life air - High (hours):	2.8
Photooxidation half- life air - Low (hours):	0.28

logKow: -0.7

continued...

P-PHENYLDIAMINE

GHS Safety Data Sheet

Version No:3

Page 12 of 13

Section 12 - ECOLOGICAL INFORMATION

Toxicity Fish: LC50(48)5.74mg/L
Bioaccumulation: not sig
Degradation Biological: by soil microflora >64 days

Section 13 - DISPOSAL CONSIDERATIONS

- Consult manufacturer for recycling options and recycle where possible .
- Consult State Land Waste Management Authority for disposal.
- Incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION



Labels Required: TOXIC
HAZCHEM: 2X

UNDG:

Dangerous Goods Class:	6.1	Subrisk:	None
UN Number:	1673	Packing Group:	III
Shipping Name:PHENYLENEDIAMINES (o-, m-, p-)			

Air Transport IATA:

ICAO/IATA Class:	6.1	ICAO/IATA Subrisk:	None
UN/ID Number:	1673	Packing Group:	III
ERG Code:	6L		
Shipping name:PHENYLENEDIAMINES (o-, m-, p-)			

Maritime Transport IMDG:

IMDG Class:	6.1	IMDG Subrisk:	None
UN Number:	1673	Packing Group:	III
EMS Number:	F- A, S- A		
Shipping name:PHENYLENEDIAMINES (o-, m-, p-)			

Section 15 - REGULATORY INFORMATION

REGULATIONS

p-phenylenediamine (CAS: 106-50-3) is found on the following regulatory lists;
International Agency for Research on Cancer (IARC) Carcinogens
International Council of Chemical Associations (ICCA) - High Production Volume List
OECD Representative List of High Production Volume (HPV) Chemicals

No data available for p-phenylenediamine as CAS: 56481-76-6.

continued...

P-PHENYLDIAMINE

GHS Safety Data Sheet

Version No:3

Page 13 of 13

Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
p- phenylenediamine	106- 50- 3, 56481- 76- 6

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

Issue Date: 23-Jun-2018