SAFETY DATA SHEET
BENZOPHENONE
REVISION 6, DATE 17 FEB 2025

1. IDENTIFICATION

Product Name	**Benzophenone**
Other Names	Benzoyl benzene; Diphenyl ketone
Uses	Additives; UV-Photoinitiator. Clear coatings for wood, plastics and metal; overprint varnish. Restriction on use: No information available.
Chemical Family	No Data Available
Chemical Formula	C13H10O
Chemical Name	Methanone, diphenyl-
Product Description	No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Suite 13A.03, Menara Summit Persiaran Kewajipan USJ1 47600 UEP Subang Jaya Selangor, Malaysia	+60-3-5614-2111

Emergency Contact Details

For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Poisons Information Centre	Australia – Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
National Poison Centre	Malaysia	+60-4-6536-999
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust)	Not Scheduled

Globally Harmonised System

Hazard Classification			Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)
Hazard Categories			Specific Target Organ Toxicity (Repeated Exposure) - Category 2 Long-term Hazard To The Aquatic Environment - Category 3 Carcinogenicity - Category 1B
Pictograms			
Signal Word			Danger
Hazard Statements		**H350**	May cause cancer.
		H373	May cause damage to organs through prolonged or repeated exposure.
		H412	Harmful to aquatic life with long lasting effects.
Precautionary Statements	Prevention	**P201**	Obtain special instructions before use.
		P281	Use personal protective equipment as required.
		P260	Do not breathe dust/fume/gas/mist/vapours/spray.
		P273	Avoid release to the environment.
		P202	Do not handle until all safety precautions have been read and understood.
	Response	**P308 + P313**	IF exposed or concerned: Get medical attention.
		P314	Get medical attention if you feel unwell.
	Storage	**P405**	Store locked up.
	Disposal	**P501**	Dispose of contents/container in accordance with local / regional / national / international regulations.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Safe Work Australia

National Guide for Classifying Hazardous Chemicals under the Model WHS Regulations

Hazard Classification	Hazardous according to the criteria of Safe Work Australia under Model WHS Regulations

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Benzophenone	C13H10O	119-61-9	>=99 %
Benzoic acid	C7H6O2	65-85-0	<1 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	IF SWALLOWED: Rinse mouth, then give 1-2 glasses of water to drink. Do NOT induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration into lungs. Get medical advice/attention if you feel unwell.
Eye	IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for at least 20 minutes. If eye irritation persists, get medical advice/attention. *Suitable emergency eye wash facility should be immediately available.
Skin	IF ON SKIN: Remove and isolate contaminated clothing and shoes. Immediately wash skin with plenty of soap and running water. If skin irritation occurs, get medical advice/attention. Wash contaminated clothing and shoes before reuse. *Suitable emergency safety shower facility should be immediately available.
Inhaled	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If respiratory symptoms persist, get medical advice/attention. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult.
Advice to Doctor	Get medical advice/attention if you feel unwell. Treat symptomatically. Symptoms may be delayed. Show this safety data sheet (SDS) to the doctor in attendance. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. *Most important symptoms and effects, both acute and delayed: No information available. *Indication of any immediate medical attention and special treatment needed: No information available.
Medical Conditions Aggravated by Exposure	No information available.

5. FIRE FIGHTING MEASURES

General Measures	Alert Fire Brigade and tell them location and nature of hazard. If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out. Dike fire control water for later disposal.
Flammability Conditions	Combustible solid which burns but propagates flame with difficulty.
Extinguishing Media	Use dry chemical, Carbon dioxide (CO2), foam or water spray for extinction - Do not scatter spilled material with high-pressure water streams.
Fire and Explosion Hazard	Avoid generating dust; Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard (including secondary explosions).
Hazardous Products of Combustion	Combustion of vapour and liquid may produce Carbon monoxide, Carbon dioxide and other hazardous gases.
Special Fire Fighting Instructions	Contain runoff from fire control or dilution water - Runoff may pollute waterways.
Personal Protective Equipment	Wear positive pressure self-contained breathing apparatus (SCBA) and chemical splash suit. SCBA and structural firefighter's uniform may provide limited protection.
Flash Point	138 °C [Closed cup]
Lower Explosion Limit	0.7 %
Upper Explosion Limit	5.4 %
Auto Ignition Temperature	No Data Available
Hazchem Code	No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Ensure adequate ventilation. ELIMINATE all ignition sources. Take precautionary measures against static discharges. Do

	not touch or walk through spilled material. Avoid generating dust. Do not breathe dust and avoid contact with eyes, skin and clothing.
Clean Up Procedures	With clean shovel, place material into clean, dry container and cover loosely; move containers from spill area. Keep in suitable, closed containers for disposal (see SECTION 13).
Containment	Stop leak if safe to do so – Prevent entry into waterways, drains or confined areas. Prevent dust cloud. Cover powder spill with plastic sheet or tarp to minimize spreading.
Decontamination	Wash contaminated area with plenty of water.
Environmental Precautionary Measures	Spillages and decontamination runoff should be prevented from entering drains and watercourses.
Evacuation Criteria	Spill or leak area should be isolated immediately. Keep unauthorised personnel away. Keep upwind and to higher ground.
Personal Precautionary Measures	Use personal protective equipment (see SECTION 8).

7. HANDLING AND STORAGE

Handling	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation, especially in confined areas. Handle in accordance with good industrial hygiene and safety practice. Avoid formation of dust and aerosols. Do not breathe dust/aerosols and avoid contact with eyes, skin and clothing. Do not ingest. Use personal protective equipment as required (see SECTION 8). Avoid strong heating. WARNING: May form combustible dust concentrations in air. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources - No smoking. Avoid release to the environment; Collect spillage (see SECTION 6).
Storage	Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources - No smoking. Keep away from foodstuffs and incompatible materials (see SECTION 8).
Container	Keep in the original container.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No specific exposure standards are available for this product.
Exposure Limits	No Data Available
Biological Limits	No information available.
Engineering Measures	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
Personal Protection Equipment	- Respiratory protection: Use appropriative respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. Recommended: Low boiling organic solvent, Filter Type AX, Brown (refer to AS/NZS 1715 & 1716). - Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Tightly fitting safety goggles. - Hand protection: Handle with gloves. Recommended: Protective gloves (such as butyl rubber). - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Wear fire/flame resistant/retardant clothing and antistatic boots.
Special Hazards Precaustions	No information available.
Work Hygienic Practices	Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Take off contaminated clothing and wash before reuse. Remove contaminated clothing and protective equipment before entering eating areas. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid

Appearance	Crystal or flakes
Odour	Geranium or sweet, rose-like
Colour	White
pH	No Data Available
Vapour Pressure	0.00257 hPa (@ 25 °C)
Relative Vapour Density	No Data Available
Boiling Point	305 °C
Melting Point	47 - 51 °C
Freezing Point	No Data Available
Solubility	23.9 mg/L in water
Specific Gravity	1.1108
Flash Point	138 °C [Closed cup]
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	>320 °C
Density	No Data Available
Specific Heat	No Data Available
Molecular Weight	182.22
Net Propellant Weight	No Data Available
Octanol Water Coefficient	Log Kow (Log Pow): 3.18 at 25 °C
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	No information available.
Potential for Dust Explosion	Avoid generating dust; Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard (including secondary explosions).
Fast or Intensely Burning Characteristics	No information available.
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No information available.
Properties That May Initiate or Contribute to Fire Intensity	Combustible solid which burns but propagates flame with difficulty.
Reactions That Release Gases or Vapours	Thermal decomposition or combustion of vapour and liquid may produce Carbon monoxide, Carbon dioxide and other hazardous gases.
Release of Invisible Flammable Vapours and Gases	When heated, vapours may form explosive mixtures with air.

10. STABILITY AND REACTIVITY

General Information	Forms explosive mixtures with air on intense heating. A range from approx. 15 Kelvin below the flash point is to be rated as critical. The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.
Chemical Stability	Stable under recommended storage and handling conditions.
Conditions to Avoid	Avoid generating dust. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.
Materials to Avoid	Incompatible/reactive with strong oxidising agents.
Hazardous Decomposition Products	None when used as directed. Thermal decomposition or combustion of vapour and liquid may produce Carbon monoxide, Carbon dioxide and other hazardous gases.
Hazardous Polymerisation	No information available.

11. TOXICOLOGICAL INFORMATION

General Information

Information on toxicological effects:
- Acute toxicity: May be harmful if swallowed.
- Skin corrosion/irritation: Not irritating (Rabbit).
- Eye damage/irritation: Slightly irritating (Rabbit).
- Respiratory/skin sensitisation: Not sensitising (Guinea pig).
- Germ cell mutagenicity: Negative.
- Carcinogenicity: Presumed to have carcinogenic potential for humans.
- Reproductive toxicity: Not classified.
- STOT (single exposure): No information available.
- STOT (repeated exposure): May cause damage to organs (Liver, Kidney) through prolonged or repeated exposure (Oral).
Benzophenone is concluded by International Agency for Research on Cancer (IARC) Working Group as a possibly carcinogenic to humans (Group 2B)
- Aspiration toxicity: No information available.

Information on likely routes of exposure:
- Ingestion: May cause GI discomfort.
- Eye contact: May cause irritation.
- Skin contact: Not considered an irritant.
- Inhalation: No information available.
Chronic effects: Considered to cause detrimental effects on body through prolonged use.

Acute

Ingestion	Acute toxicity (Oral): - LD50, Rat: 2,895 mg/kg [Supplier's SDS].
Other	Acute toxicity (Dermal): - LD50, Rabbit: 3,535 mg/kg [Supplier's SDS].
Carcinogen Category	None

12. ECOLOGICAL INFORMATION

Ecotoxicity	Aquatic toxicity: - Acute LC50, Fish: 14.75 mg/L (96 h) [Supplier's SDS]. - Acute EC50, Crustacea (Daphnia): 6.784 mg/L (48 h) [Supplier's SDS]. - Acute EC50, Algae: 3.5 mg/L (72 h) [Supplier's SDS].
Persistence/Degradability	Readily biodegradable. Aerobic: Exposure time 28 d Result: 66 - 84 % - Readily biodegradable. [OECD Test Guideline 301F]
Mobility	A low to moderate mobility in soil is to be expected. - Koc at 20 °C: 517
Environmental Fate	Toxic to aquatic life with long lasting effects - Prevent entry into drains and waterways. Based on the measured BCF (3.4-12) a low potential for bioconcentration in aquatic organisms is to be expected.

Bioaccumulation Potential	
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of contents/container in accordance with local/regional/national regulations. Incineration disposal recommended.
Special Precautions for Land Fill	Containers may still present chemical hazard when empty. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Recycle, if possible.

14. TRANSPORT INFORMATION

Land Transport (Australia)
ADG Code

Proper Shipping Name	Benzophenone
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (Malaysia)
ADR Code

Proper Shipping Name	Benzophenone
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (New Zealand)
NZS5433

Proper Shipping Name	Benzophenone
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available

Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (United States of America)
US DOT

Proper Shipping Name	Benzophenone
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for SEA transport.

Sea Transport
IMDG Code

Proper Shipping Name	Benzophenone)
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
EMS	No Data Available
Marine Pollutant	No
Comments	NON-DANGEROUS GOODS: Not regulated for SEA transport.

Air Transport
IATA DGR

Proper Shipping Name	Benzophenone)
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for AIR transport.

National Transport Commission (Australia)
Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

15. REGULATORY INFORMATION

General Information	No Data Available
Poisons Schedule (Aust)	Not Scheduled

Environmental Protection Authority (New Zealand)
Hazardous Substances and New Organisms Amendment Act 2015

Approval Code	HSR002512 - Additives, Process Chemicals and Raw Materials (Carcinogenic) Group Standard 2020

National/Regional Inventories

Australia (AIIC)	Listed
Canada (DSL)	Not Determined
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	204-337-6
Europe (REACh)	Not Determined
Japan (ENCS/METI)	Not Determined
Korea (KECI)	Not Determined
Malaysia (List of Classified Substances)	Not Determined
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Not Determined
Taiwan (TCSI)	Not Determined
USA (TSCA)	Not Determined
Mexico (INSQ)	Not Determined

16. OTHER INFORMATION

Related Product Codes	BENZOP1000, BENZOP1001, BENZOP1002, BENZOP1003, BENZOP1004, BENZOP1005, BENZOP1006, BENZOP1007, BENZOP1008, BENZOP1009, BENZOP1010, BENZOP1011, BENZOP1012, BENZOP1013, BENZOP1014, BENZOP1015, BENZOP1016, BENZOP1017, BENZOP1018, BENZOP1019, BENZOP1100, BENZOP1500, BENZOP2000, BENZOP2500, BENZOP2501, BENZOP3000, BENZOP3001, BENZOP3002, BENZOP3100, BENZOP3101, BENZOP3102, BENZOP4000, BENZOP5000, BENZOP6000
Revision	6
Revision Date	17 Feb 2025
Key/Legend	< Less Than > Greater Than **AICS** Australian Inventory of Chemical Substances **atm** Atmosphere **CAS** Chemical Abstracts Service (Registry Number)

cm^2 Square Centimetres
CO2 Carbon Dioxide
COD Chemical Oxygen Demand
deg C (°C) Degrees Celcius
EPA (New Zealand) Environmental Protection Authority of New Zealand
deg F (°F) Degrees Farenheit
g Grams
g/cm^3 Grams per Cubic Centimetre
g/l Grams per Litre
HSNO Hazardous Substance and New Organism
IDLH Immediately Dangerous to Life and Health
immiscible Liquids are insoluable in each other.
inHg Inch of Mercury
inH2O Inch of Water
K Kelvin
kg Kilogram
kg/m^3 Kilograms per Cubic Metre
lb Pound
LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.
LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.
ltr or **L** Litre
m^3 Cubic Metre
mbar Millibar
mg Milligram
mg/24H Milligrams per 24 Hours
mg/kg Milligrams per Kilogram
mg/m^3 Milligrams per Cubic Metre
Misc or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.
mm Millimetre
mmH2O Millimetres of Water
mPa.s Millipascals per Second
N/A Not Applicable
NIOSH National Institute for Occupational Safety and Health
NOHSC National Occupational Heath and Safety Commission
OECD Organisation for Economic Co-operation and Development
Oz Ounce
PEL Permissible Exposure Limit
Pa Pascal
ppb Parts per Billion
ppm Parts per Million
ppm/2h Parts per Million per 2 Hours
ppm/6h Parts per Million per 6 Hours
psi Pounds per Square Inch
R Rankine
RCP Reciprocal Calculation Procedure
STEL Short Term Exposure Limit
TLV Threshold Limit Value
tne Tonne
TWA Time Weighted Average
ug/24H Micrograms per 24 Hours
UN United Nations
wt Weight