



# SAFETY DATA SHEET OPTICAL BRIGHTENER CBS-X REVISION 6, DATE 19 OCT 22

## 1. IDENTIFICATION

<b>Product Name</b>	<b>Optical Brightener CBS-X</b>
<b>Other Names</b>	4,4'-Bis(2-sulfostyryl)biphenyl, disodium salt; Disodium 2,2'-([1,1'-biphenyl]-4,4'-diyldivinylene)bis(benzenesulphonate)
<b>Uses</b>	Industrial use.
<b>Chemical Family</b>	No Data Available
<b>Chemical Formula</b>	C <sub>28</sub> H <sub>22</sub> O <sub>6</sub> S <sub>2</sub> .2Na
<b>Chemical Name</b>	Benzenesulfonic acid, 2,2'-([1,1'-biphenyl]-4,4'-diyl)-2,1-ethenediyl)bis-, disodium salt
<b>Product Description</b>	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	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, 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	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
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

<b>Hazard Classification</b>		Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)	
<b>Hazard Categories</b>		Serious Eye Damage/Irritation - Category 2A	
<b>Pictograms</b>			
<b>Signal Word</b>		Warning	
<b>Hazard Statements</b>		<b>H319</b>	Causes serious eye irritation.
<b>Precautionary Statements</b>	Prevention	<b>P280</b>	Wear eye protection/face protection.
		<b>P264</b>	Wash hands thoroughly after handling.
	Response	<b>P305 + P351 + P338</b>	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		<b>P337 + P313</b>	If eye irritation persists: Get medical advice.

## National Transport Commission (Australia)

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

<b>Dangerous Goods Classification</b>	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
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## 3. COMPOSITION/INFORMATION ON INGREDIENTS

## Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Disodium 2,2'-([1,1'-biphenyl]-4,4'-diyl)divinylene)bis (benzenesulphonate)	C28H22O6S2.2Na	27344-41-8	99 - 100 %

## 4. FIRST AID MEASURES

## Description of necessary measures according to routes of exposure

<b>Swallowed</b>	IF SWALLOWED: Rinse mouth, then drink 200 - 300 ml water. Get medical advice/attention.
<b>Eye</b>	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 15 minutes. If eye irritation persists, consult an eye specialist.
<b>Skin</b>	IF ON SKIN: Wash with plenty of soap and water - Do not use organic solvents. Take off contaminated clothing and wash it before reuse. If skin irritation occurs, get medical advice/attention.
<b>Inhaled</b>	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.
<b>Advice to Doctor</b>	In all cases of doubt, or when symptoms persist, seek medical attention. Treat according to symptoms (decontamination, vital functions), no known specific antidote. Show this safety data sheet (SDS) to the doctor in attendance. *Most important symptoms and effects, both acute and delayed: Causes serious eye irritation.

**Medical Conditions Aggravated by Exposure** No information available.

## 5. FIRE FIGHTING MEASURES

<b>General Measures</b>	If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out.
<b>Flammability Conditions</b>	Non-flammable. May burn but does not ignite readily.
<b>Extinguishing Media</b>	Use dry chemical, Carbon dioxide (CO <sub>2</sub> ), foam or water spray for extinction - Do not use water jet.
<b>Fire and Explosion Hazard</b>	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.
<b>Hazardous Products of Combustion</b>	Fire may produce irritating and/or toxic gases, including Carbon oxides, Sulfur oxides.
<b>Special Fire Fighting Instructions</b>	Contain runoff from fire control or dilution water - Runoff may cause pollution. Contaminated extinguishing water must be disposed of in accordance with official regulations.
<b>Personal Protective Equipment</b>	Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.
<b>Flash Point</b>	No Data Available
<b>Lower Explosion Limit</b>	No Data Available
<b>Upper Explosion Limit</b>	No Data Available
<b>Auto Ignition Temperature</b>	315 °C
<b>Hazchem Code</b>	No Data Available

## 6. ACCIDENTAL RELEASE MEASURES

<b>General Response Procedure</b>	No action shall be taken involving any personal risk or without suitable training. Ensure adequate ventilation. ELIMINATE all ignition sources (if dust clouds can occur). Do not touch or walk through spilled material. Avoid generating dust. Avoid breathing dust and contact with eyes, skin and clothing.
<b>Clean Up Procedures</b>	For small amounts, pick up with suitable appliance and place into containers for later disposal. For large amounts, contain with dust binding material and dispose of (see SECTION 13). *Avoid raising dust.
<b>Containment</b>	Stop leak if you can do it without risk. Prevent dust cloud. Prevent entry into waterways, sewers, basements or confined areas.
<b>Decontamination</b>	No information available.
<b>Environmental Precautionary Measures</b>	Do not discharge into drains/surface waters/groundwater.
<b>Evacuation Criteria</b>	Spill or leak area should be isolated immediately. Keep unnecessary and unprotected personnel from entering.
<b>Personal Precautionary Measures</b>	Use personal protective clothing (see SECTION 8). *A self-contained breathing apparatus is recommended in case of a major spill.

## 7. HANDLING AND STORAGE

<b>Handling</b>	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Minimise dust generation and accumulation. Avoid breathing dust and contact with eyes, skin and clothing. Do not ingest. Put on appropriate personal protective equipment (see SECTION 8). WARNING: May form combustible dust concentrations in air! Avoid high temperatures and proximity to sources of ignition - No smoking. Take precautionary measures against static discharges. *Check peroxide content before use.
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<b>Storage</b>	Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep container tightly closed. Keep away from heat and sources of ignition - No smoking. Keep away from incompatible materials (see SECTION 10). *Avoid temperature extremes, especially frost and freezing conditions (No thermal effect between room temperature and 150 °C).
<b>Container</b>	Keep in the original container.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>General</b>	No specific exposure standards are available for this product. DNEL-Values for Workers: - Via inhalation route (Systemic effects, Long-term exposure): 20.5 mg/m3 - Via dermal route (Systemic effects, Long-term exposure): 53 mg/kg bw/day
<b>Exposure Limits</b>	No Data Available
<b>Biological Limits</b>	No information available.
<b>Engineering Measures</b>	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.
<b>Personal Protection Equipment</b>	- Respiratory protection: In case of inadequate ventilation, wear respiratory protection. Recommended: Organic vapour/particulate respirator (refer to AS/NZS 1715 & 1716). - Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Tightly fitting safety goggles (chemical goggles) and face shield. - Hand protection: Handle with gloves. Recommended: Appropriate chemically resistant gloves, e.g. butyl, natural and synthetic rubber, nitrile or neoprene. - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit.
<b>Special Hazards Precautions</b>	Breathing must be protected when large quantities are decanted without local exhaust ventilation.
<b>Work Hygienic Practices</b>	Do not eat, drink or smoke when using this product. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Wash hands before breaks and at the end of workday. 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

<b>Physical State</b>	Solid
<b>Appearance</b>	Crystalline powder
<b>Odour</b>	Characteristic
<b>Colour</b>	Yellowish green
<b>pH</b>	No Data Available
<b>Vapour Pressure</b>	<2 x 10 <sup>-16</sup> Pa (@ 20 °C)
<b>Relative Vapour Density</b>	No Data Available
<b>Boiling Point</b>	No Data Available
<b>Melting Point</b>	>300 °C
<b>Freezing Point</b>	No Data Available
<b>Solubility</b>	17.6 g/L in water 20°C
<b>Specific Gravity</b>	No Data Available
<b>Flash Point</b>	No Data Available
<b>Auto Ignition Temp</b>	315 °C

Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	1.49 g/cm <sup>3</sup>
Specific Heat	No Data Available
Molecular Weight	562.56 g/mol
Net Propellant Weight	No Data Available
Octanol Water Coefficient	log Po/w: -2.32 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.
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	Non-flammable. May burn but does not ignite readily.
Reactions That Release Gases or Vapours	Fire/decomposition may produce irritating and/or toxic gases, including Carbon oxides, Sulfur oxides.
Release of Invisible Flammable Vapours and Gases	No information available.

## 10. STABILITY AND REACTIVITY

General Information	No hazardous reactions if stored and handled as prescribed/indicated.
Chemical Stability	Stable at normal ambient temperatures and when used as recommended.
Conditions to Avoid	Avoid generating dust. Avoid high temperatures and proximity to sources of ignition. *Avoid temperature extremes, especially frost and freezing conditions.
Materials to Avoid	Incompatible/reactive with strong oxidising agents, strong bases, strong acids, reactive chemicals.
Hazardous Decomposition Products	No decomposition expected under normal storage conditions. Fire/decomposition may produce irritating and/or toxic gases, including Carbon oxides, Sulfur oxides.
Hazardous Polymerisation	No information available.

## 11. TOXICOLOGICAL INFORMATION

General Information	Toxicological information:
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- Acute toxicity: Not classified.
  - Skin corrosion/irritation: Not classified.
  - Eye damage/irritation: Causes serious eye irritation.
  - Respiratory/skin sensitisation: Not classified.
  - Germ cell mutagenicity: Not classified.
  - Carcinogenicity: Not classified.
  - Reproductive toxicity: Not classified.
  - STOT (single exposure): Not classified.
  - STOT (repeated exposure): Not classified.
  - Aspiration toxicity: Not classified.
- \*Endocrine disrupting properties: The substance is not identified as having endocrine disrupting properties.

**Acute****Ingestion**

Acute toxicity (Oral):  
- LD50, Rat: >2,000 mg/kg bw. [Supplier's SDS].

**Other**

Acute toxicity (Dermal):  
- LD50, Rabbit: >2,000 mg/kg bw. [Supplier's SDS].

**Carcinogen Category**

None

**12. ECOLOGICAL INFORMATION****Ecotoxicity**

Aquatic toxicity:  
- LC50, Fish: 74.8 mg/L (96 h) [Supplier's SDS].  
- EC50, Algae/aquatic plants: 10.28 mg/L (72 h) [Supplier's SDS].  
- NOEC, Crustacea (Daphnia magna): 7.5 mg/L [Supplier's SDS].  
- NOEC, Algae/aquatic plants: 3.125 mg/L [Supplier's SDS].  
\*Endocrine disrupting properties: The substance is not identified as having endocrine disrupting properties.

**Persistence/Degradability**

Under test conditions no biodegradation observed.

**Mobility**

Mobility in soil (log K<sub>oc</sub>): 7.5

**Environmental Fate**

Do not discharge into drains/surface waters/groundwater.

**Bioaccumulation Potential**

Bioconcentration factor (BCF): <1

**Environmental Impact**

No Data Available

**13. DISPOSAL CONSIDERATIONS****General Information**

Dispose of in accordance with all applicable local and national regulations. Use recovery/recycling where feasible, otherwise incineration is the recommended method of disposal.

**Special Precautions for Land Fill**

Empty containers may contain hazardous residues. Do not cut, puncture or weld on or near to the container. Labels should not be removed from containers until they have been cleaned. Contaminated containers must not be treated as household waste. Containers should be cleaned by appropriate methods and then re-used or disposed of by landfill or incineration as appropriate. Do not incinerate closed containers.

**14. TRANSPORT INFORMATION****Land Transport (Australia)**

ADG Code

**Proper Shipping Name**

Optical Brightener CBS-X

## SAFETY DATA SHEET OPTICAL BRIGHTENER CBS-X REVISION 6, DATE 19 OCT 22

<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available
<b>Comments</b>	NON-DANGEROUS GOODS: Not regulated for LAND transport.

### Land Transport (Malaysia)

ADR Code

<b>Proper Shipping Name</b>	Optical Brightener CBS-X
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available
<b>Comments</b>	NON-DANGEROUS GOODS: Not regulated for LAND transport.

### Land Transport (New Zealand)

NZS5433

<b>Proper Shipping Name</b>	Optical Brightener CBS-X
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available
<b>Comments</b>	NON-DANGEROUS GOODS: Not regulated for LAND transport.

### Land Transport (United States of America)

US DOT

<b>Proper Shipping Name</b>	Optical Brightener CBS-X
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available
<b>Comments</b>	NON-DANGEROUS GOODS: Not regulated for LAND transport.

### Sea Transport

IMDG Code

<b>Proper Shipping Name</b>	Optical Brightener CBS-X
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## SAFETY DATA SHEET OPTICAL BRIGHTENER CBS-X REVISION 6, DATE 19 OCT 22

<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available
<b>EMS</b>	No Data Available
<b>Marine Pollutant</b>	No
<b>Comments</b>	NON-DANGEROUS GOODS: Not regulated for SEA transport.

### Air Transport

IATA DGR

<b>Proper Shipping Name</b>	Optical Brightener CBS-X
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available
<b>Comments</b>	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)

<b>Dangerous Goods Classification</b>	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
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## 15. REGULATORY INFORMATION

<b>General Information</b>	No Data Available
<b>Poisons Schedule (Aust)</b>	Not Scheduled

### Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

<b>Approval Code</b>	HSR002503 - Additives, Process Chemicals and Raw Materials (Subsidiary Hazard) Group Standard 2020
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### National/Regional Inventories

<b>Australia (AIC)</b>	Listed
<b>Canada (DSL)</b>	Not Determined
<b>Canada (NDSL)</b>	Not Determined
<b>China (IECSC)</b>	Not Determined
<b>Europe (EINECS)</b>	248-421-0



Europe (REACH)	01-2119533064-49-
Japan (ENCS/METI)	Not Determined
Korea (KECI)	Not Determined
Malaysia (EHS Register)	Not Determined
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Not Determined
Switzerland (Giftliste 1)	Not Determined
Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Not Determined
USA (TSCA)	Not Determined

## 16. OTHER INFORMATION

Related Product Codes	OPBRIG8000, OPBRIG8001, OPBRIG8005, OPBRIG8006, OPBRIG8007, OPBRIG8100, OPBRIG8101
Revision	6
Revision Date	19 Oct 2022
Reason for Issue	Updated SDS
Key/Legend	<p>&lt; Less Than</p> <p>&gt; Greater Than</p> <p><b>AICS</b> Australian Inventory of Chemical Substances</p> <p><b>atm</b> Atmosphere</p> <p><b>CAS</b> Chemical Abstracts Service (Registry Number)</p> <p><b>cm<sup>2</sup></b> Square Centimetres</p> <p><b>CO<sub>2</sub></b> Carbon Dioxide</p> <p><b>COD</b> Chemical Oxygen Demand</p> <p><b>deg C (°C)</b> Degrees Celcius</p> <p><b>EPA (New Zealand)</b> Environmental Protection Authority of New Zealand</p> <p><b>deg F (°F)</b> Degrees Farenheit</p> <p><b>g</b> Grams</p> <p><b>g/cm<sup>3</sup></b> Grams per Cubic Centimetre</p> <p><b>g/l</b> Grams per Litre</p> <p><b>HSNO</b> Hazardous Substance and New Organism</p> <p><b>IDLH</b> Immediately Dangerous to Life and Health</p> <p><b>immiscible</b> Liquids are insoluable in each other.</p> <p><b>inHg</b> Inch of Mercury</p> <p><b>inH<sub>2</sub>O</b> Inch of Water</p> <p><b>K</b> Kelvin</p> <p><b>kg</b> Kilogram</p> <p><b>kg/m<sup>3</sup></b> Kilograms per Cubic Metre</p> <p><b>lb</b> Pound</p> <p><b>LC<sub>50</sub></b> LC stands for lethal concentration. LC<sub>50</sub> 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.</p> <p><b>LD<sub>50</sub></b> LD stands for Lethal Dose. LD<sub>50</sub> is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.</p> <p><b>ltr or L</b> Litre</p> <p><b>m<sup>3</sup></b> Cubic Metre</p> <p><b>mbar</b> Millibar</p> <p><b>mg</b> Milligram</p> <p><b>mg/24H</b> Milligrams per 24 Hours</p>

**mg/kg** Milligrams per Kilogram

**mg/m<sup>3</sup>** Milligrams per Cubic Metre

**Misc** or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.

**mm** Millimetre

**mmH<sub>2</sub>O** Millimetres of Water

**mPa.s** Millipascals per Second

**N/A** Not Applicable

**NIOSH** National Institute for Occupational Safety and Health

**NOHSC** National Occupational Health 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