

SAFETY DATA SHEET



Date of issue/Date of revision 17 August 2023

Version 2.04

Section 1. Identification

Product code : 00243744
Product name : SIGMAWELD 165 PASTE REDBROWN
Product type : Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Product use : Coating.
Professional applications, Used by spraying.

Supplier's details : PPG Industries (Singapore) Pte. Ltd., No. 1 Tuas Basin Close, Singapore 638803.
Tel +65 68653737

Emergency telephone number (with hours of operation) : CHEMTREC +(65)-31581349 (CCN 17704)

Section 2. Hazards identification

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 2
SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2A
REPRODUCTIVE TOXICITY - Category 2
SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 1
SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1

GHS label elements, including precautionary statements

Hazard pictograms :



Signal word : Danger

Hazard statements : Highly flammable liquid and vapour.
Causes serious eye irritation.
Suspected of damaging fertility or the unborn child.
Causes damage to organs through prolonged or repeated exposure.
Very toxic to aquatic life with long lasting effects.

Precautionary statements

Section 2. Hazards identification

- Prevention** : Do not handle until all safety precautions have been read and understood. Wear protective gloves, protective clothing and eye or face protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid release to the environment. Do not breathe vapour.
- Response** : Collect spillage. IF exposed or concerned: Get medical advice or attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.
- Storage** : Not applicable.
- Disposal** : Not applicable.

Other hazards which do not result in classification : Prolonged or repeated contact may dry skin and cause irritation.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

CAS number/other identifiers

CAS number : Not applicable.
EC number : Mixture.

Ingredient name	%	CAS number
Zinc powder - zinc dust (stabilized)	25 - <50	7440-66-6
ethanol	10 - <20	64-17-5
crystalline silica, respirable powder (<10 microns)	10 - <20	14808-60-7
1-methoxy-2-propanol	5 - <10	107-98-2
Isopropyl alcohol	5 - <10	67-63-0
toluene	3 - <5	108-88-3
zinc oxide	1 - <3	1314-13-2

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

SUB codes represent substances without registered CAS Numbers.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Remove contact lenses, irrigate copiously with clean, fresh water, holding the eyelids apart for at least 10 minutes and seek immediate medical advice.
- Inhalation** : Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.
- Skin contact** : Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognised skin cleanser. Do NOT use solvents or thinners.
- Ingestion** : If swallowed, seek medical advice immediately and show the container or label. Keep person warm and at rest. Do NOT induce vomiting.

Section 4. First aid measures

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Defatting to the skin. May cause skin dryness and irritation.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
reduced foetal weight
increase in foetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
irritation
dryness
cracking
reduced foetal weight
increase in foetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
reduced foetal weight
increase in foetal deaths
skeletal malformations

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Firefighting measures

Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO₂, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

Section 5. Firefighting measures

- Specific hazards arising from the chemical** : Highly flammable liquid and vapour. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon oxides
metal oxide/oxides
- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Methods and material for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 6. Accidental release measures

Section 7. Handling and storage

Precautions for safe handling

Protective measures

: Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene

: 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. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

: Store between the following temperatures: 0 to 35°C (32 to 95°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidising materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
ethanol	Workplace Safety and Health Act (Singapore, 2/2006). PEL (long term): 1880 mg/m ³ 8 hours. PEL (long term): 1000 ppm 8 hours.
crystalline silica, respirable powder (<10 microns)	ACGIH TLV (United States, 1/2022). [Silica, crystalline] TWA: 0.025 mg/m ³ 8 hours. Form: Respirable
1-methoxy-2-propanol	Workplace Safety and Health Act (Singapore, 2/2006). [Propylene glycol]

Section 8. Exposure controls/personal protection

Isopropyl alcohol

toluene

zinc oxide

monomethyl ether]

PEL (short term): 553 mg/m³ 15 minutes.
 PEL (short term): 150 ppm 15 minutes.
 PEL (long term): 369 mg/m³ 8 hours.
 PEL (long term): 100 ppm 8 hours.

Workplace Safety and Health Act (Singapore, 2/2006).

PEL (short term): 1230 mg/m³ 15 minutes.
 PEL (short term): 500 ppm 15 minutes.
 PEL (long term): 983 mg/m³ 8 hours.
 PEL (long term): 400 ppm 8 hours.

Workplace Safety and Health Act (Singapore, 2/2006).

PEL (long term): 188 mg/m³ 8 hours.
 PEL (long term): 50 ppm 8 hours.

Workplace Safety and Health Act (Singapore, 2/2006).

PEL (long term): 10 mg/m³ 8 hours. Form: Dust
 PEL (short term): 10 mg/m³ 15 minutes.
 Form: Fume
 PEL (long term): 5 mg/m³ 8 hours. Form: Fume

Recommended monitoring procedures : Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Chemical splash goggles.

Skin protection

Section 8. Exposure controls/personal protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Gloves** : For prolonged or repeated handling, use the following type of gloves:
Recommended: butyl rubber, nitrile rubber
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Liquid.
- Colour** : Brownish-red.
- Odour** : Aromatic.
- pH** : insoluble in water.
- Boiling point** : >37.78°C (>100°F)
- Flash point** : Closed cup: 13°C (55.4°F)
- Evaporation rate** : Highest known value: 2 (toluene) Weighted average: 1.54 compared with butyl acetate
- Flammability (solid, gas)** : liquid
- Vapour pressure** : Highest known value: 5.7 kPa (43 mm Hg) (at 20°C) (ethanol). Weighted average: 3.87 kPa (29.03 mm Hg) (at 20°C)
- Vapour density** : Highest known value: 3.11 (Air = 1) (1-methoxy-2-propanol). Weighted average: 2.32 (Air = 1)
- Relative density** : 2
- Solubility(ies)** :

Media	Result
cold water	Not soluble

Section 9. Physical and chemical properties

Auto-ignition temperature : Lowest known value: 270°C (518°F) (1-methoxy-2-propanol).

Viscosity : Kinematic (40°C (104°F)): >21 mm²/s (>21 cSt)

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : When exposed to high temperatures may produce hazardous decomposition products.

Incompatible materials : Keep away from the following materials to prevent strong exothermic reactions: oxidising agents, strong alkalis, strong acids.

Hazardous decomposition products : Evolves hydrogen on contact with water. Depending on conditions, decomposition products may include the following materials: carbon oxides metal oxide/oxides

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Zinc powder - zinc dust (stabilized)	LC50 Inhalation Dusts and mists	Rat	>5.4 mg/l	4 hours
ethanol	LD50 Oral	Rat	>2000 mg/kg	-
	LC50 Inhalation Vapour	Rat	124700 mg/m ³	4 hours
	LD50 Dermal	Rat	17100 mg/kg	-
1-methoxy-2-propanol	LD50 Oral	Rat	7 g/kg	-
	LC50 Inhalation Vapour	Rat	>7000 ppm	6 hours
	LD50 Dermal	Rabbit	13 g/kg	-
Isopropyl alcohol	LD50 Oral	Rat	5.2 g/kg	-
	LC50 Inhalation Vapour	Rat	72600 mg/m ³	4 hours
	LD50 Dermal	Rabbit	12800 mg/kg	-
toluene	LD50 Oral	Rat	5045 mg/kg	-
	LC50 Inhalation Vapour	Rat	49 g/m ³	4 hours
	LD50 Dermal	Rabbit	8.39 g/kg	-
zinc oxide	LD50 Oral	Rat	5580 mg/kg	-
	LC50 Inhalation Dusts and mists	Rat	>5700 mg/m ³	4 hours
	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-

Conclusion/Summary : There are no data available on the mixture itself.

Irritation/Corrosion

Conclusion/Summary

Skin : There are no data available on the mixture itself.

Section 11. Toxicological information

Eyes : There are no data available on the mixture itself.

Respiratory : There are no data available on the mixture itself.

Sensitisation

Conclusion/Summary

Skin : There are no data available on the mixture itself.

Respiratory : There are no data available on the mixture itself.

Mutagenicity

Conclusion/Summary : There are no data available on the mixture itself.

Carcinogenicity

Conclusion/Summary : There are no data available on the mixture itself.

Reproductive toxicity

Conclusion/Summary : There are no data available on the mixture itself.

Teratogenicity

Conclusion/Summary : There are no data available on the mixture itself.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
1-methoxy-2-propanol	Category 3	-	Narcotic effects
Isopropyl alcohol	Category 3	-	Narcotic effects
toluene	Category 3	-	Narcotic effects

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
crystalline silica, respirable powder (<10 microns)	Category 1	inhalation	-
toluene	Category 2	-	-

Aspiration hazard

Name	Result
toluene	ASPIRATION HAZARD - Category 1

Information on likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : Defatting to the skin. May cause skin dryness and irritation.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Section 11. Toxicological information

Eye contact	: Adverse symptoms may include the following: pain or irritation watering redness
Inhalation	: Adverse symptoms may include the following: reduced foetal weight increase in foetal deaths skeletal malformations
Skin contact	: Adverse symptoms may include the following: irritation dryness cracking reduced foetal weight increase in foetal deaths skeletal malformations
Ingestion	: Adverse symptoms may include the following: reduced foetal weight increase in foetal deaths skeletal malformations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General : Causes damage to organs through prolonged or repeated exposure. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : Suspected of damaging fertility or the unborn child.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Other information :

Section 11. Toxicological information

Prolonged or repeated contact may dry skin and cause irritation. Sanding and grinding dusts may be harmful if inhaled. Repeated exposure to high vapor concentrations may cause irritation of the respiratory system and permanent brain and nervous system damage. Inhalation of vapour/aerosol concentrations above the recommended exposure limits causes headaches, drowsiness and nausea and may lead to unconsciousness or death. Avoid contact with skin and clothing.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Zinc powder - zinc dust (stabilized)	Acute EC50 0.106 mg/l Fresh water	Algae - <i>Pseudokirchneriella subcapitata</i>	72 hours
ethanol	Chronic NOEC 0.0727 mg/l Fresh water	Daphnia - <i>Daphnia Magna</i>	21 days
1-methoxy-2-propanol	Acute EC50 7640 mg/l Fresh water	Daphnia - <i>Daphnia magna</i>	48 hours
Isopropyl alcohol	Acute LC50 23300 mg/l	Daphnia	48 hours
zinc oxide	Acute LC50 >4500 mg/l Fresh water	Fish	96 hours
	Acute EC50 10100 mg/l Fresh water	Daphnia - <i>Daphnia magna</i>	48 hours
	Acute EC50 0.17 mg/l	Algae	72 hours
	Acute EC50 0.481 mg/l Fresh water	Daphnia - <i>Daphnia magna</i> - Neonate	48 hours
	Chronic NOEC 0.017 mg/l Fresh water	Algae	72 hours

Conclusion/Summary : There are no data available on the mixture itself.

Persistence/degradability

Conclusion/Summary : There are no data available on the mixture itself.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
ethanol	-	-	Readily
toluene	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
ethanol	-0.35	-	Low
1-methoxy-2-propanol	<1	-	Low
Isopropyl alcohol	0.05	-	Low
toluene	2.73	8.32	Low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	IATA
UN number	UN1263	UN1263	UN1263
UN proper shipping name	PAINT	PAINT	PAINT
Transport hazard class(es)	3	3	3
Packing group	II	II	II
Environmental hazards	Yes. The environmentally hazardous substance mark is not required.	Yes.	Yes. The environmentally hazardous substance mark is not required.
Marine pollutant substances	Not applicable.	(Zinc powder - zinc dust (stabilized), zinc oxide)	Not applicable.

Additional information

UN : None identified.

IMDG : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.

IATA : The environmentally hazardous substance mark may appear if required by other transportation regulations.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not applicable.

Section 15. Regulatory information

Singapore - hazardous chemicals under government control

None.

International regulations

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Section 16. Other information

History

Date of issue/Date of revision	: 17 August 2023
Date of previous issue	: 1/18/2023
Version	: 2.04
Prepared by	: EHS
Key to abbreviations	: ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) UN = United Nations

✔ Indicates information that has changed from previously issued version.

Notice to reader

The information contained in this data sheet is based on present scientific and technical knowledge. The purpose of this information is to draw attention to the health and safety aspects concerning the products supplied by PPG, and to recommend precautionary measures for the storage and handling of the products. No warranty or guarantee is given in respect of the properties of the products. No liability can be accepted for any failure to observe the precautionary measures described in this data sheet or for any misuse of the products.