



SAFETY DATA SHEET

Issuing Date 24-May-2015

Revision Date 09-Aug-2015

Revision Number 2

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

GHS product identifier

Product Name PSR-4000 LDI (US), PSR-4000 LDI (US) Black, PSR-4000 LDI (US) Red, PSR-4000 LDI (US) Blue, PSR-4000 LDI (US) Clear

Other means of identification

Product Code(s) 800013, 800039, 800027, 800082, 800038

Synonyms None

Recommended use of the chemical and restrictions on use

Recommended Use Solder mask part A

Uses advised against No information available

Supplier's details

Supplier Address
Taiyo America, Inc.
2675 Antler Drive
Carson City, NV 89701
TEL: 775-885-9959

Emergency telephone number

Emergency Telephone Number 775-885-9959

2. HAZARDS IDENTIFICATION

Classification


This chemical is considered hazardous according to the OSHA Hazard Communication Standard 2012 (29 CFR 1910.1200)

Skin Sensitization	Category 1
Reproductive Toxicity	Category 1B

GHS Label elements, including precautionary statements

Emergency Overview

Signal Word	Danger
Hazard Statements	
• Causes mild skin irritation	
• May cause an allergic skin reaction	
• May damage fertility or the unborn child	

	Appearance Various	Physical State Viscous liquid.	Odor Mild Solvent
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Precautionary Statements

Prevention

- Avoid breathing dust/fume/gas/mist/vapors/spray.
- Contaminated work clothing should not be allowed out of the workplace.
- Wear protective gloves.
- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Use personal protective equipment as required.

General Advice

- If exposed or concerned: Get medical attention/advice
- Specific treatment (see supplemental first aid instructions on this label)

Skin

- IF ON SKIN: Wash with plenty of soap and water.
- If skin irritation or rash occurs: Get medical advice/attention.
- Wash contaminated clothing before reuse.

Storage

- Store locked up.

Disposal

- Dispose of contents/container to an approved waste disposal plant.

Hazard Not Otherwise Classified (HNOC)

Not applicable

Other information

Toxic to aquatic life with long lasting effects

97.0276% of the mixture consists of ingredient(s) of unknown toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %	Trade secret
Barium sulfate	7727-43-7	10-30	*
Iron manganese oxide ((Fe,Mn)2O3)	75864-23-2	0-15	*
Dipropylene glycol monomethyl ether	34590-94-8	0.10	*
Talc	14807-96-6	1-5	*
Silicon dioxide	7631-86-9	1-5	*
Trimethylolpropane triacrylate	15625-89-5	1-5	*
1-Propanone, 2-methyl-1-[4-(methylthio)phenyl]-2-(4-morpholinyl)-	71868-10-5	0.1-1	*
Titanium dioxide	13463-67-7	0-0.5	*

**The exact percentage (concentration) of composition has been withheld as a trade secret.*

4. FIRST AID MEASURES

Description of necessary first-aid measures

General Advice	If symptoms persist, call a physician. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing.
Eye Contact	Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a physician.
Skin Contact	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Consult a physician if necessary.
Inhalation	Move to fresh air. If symptoms persist, call a physician. If breathing is difficult, give oxygen.
Ingestion	Rinse mouth. Do NOT induce vomiting. Drink plenty of water. If symptoms persist, call a physician.
Protection of First-aiders	Use personal protective equipment. Avoid contact with skin, eyes and clothing.

Most important symptoms/effects, acute and delayed

Most Important Symptoms/Effects May cause allergic skin reaction.

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

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Water spray. Carbon dioxide (CO₂). Dry powder. Dry chemical.

Unsuitable Extinguishing Media No information available.

Specific Hazards Arising from the Chemical

No information available.

Explosion Data

Sensitivity to Mechanical Impact	None.
Sensitivity to Static Discharge	None.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Use personal protective equipment. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation.

Environmental Precautions

Environmental Precautions Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system. Prevent entry into waterways, sewers, basements or confined areas. Avoid release to the environment. See Section 12 for additional Ecological Information.

Methods and materials for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe vapors or spray mist. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Do not take internally.

Conditions for safe storage, including any incompatibilities

Storage Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children.

Incompatible Products Strong oxidizing agents. Strong acids. Strong bases.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Barium sulfate 7727-43-7	TWA: 5 mg/m ³ inhalable fraction, particulate matter containing no asbestos and <1% crystalline silica	TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 10 mg/m ³ total dust (vacated) TWA: 5 mg/m ³ respirable fraction	TWA: 10 mg/m ³ total dust TWA: 5 mg/m ³ respirable dust
Iron manganese oxide ((Fe,Mn)2O3) 75864-23-2	TWA: 1 mg/m ³ Fe TWA: 0.2 mg/m ³ Mn	(vacated) TWA: 1 mg/m ³ Fe (vacated) Ceiling: 5 mg/m ³ Ceiling: 5 mg/m ³ Mn	IDLH: 500 mg/m ³ Mn TWA: 1 mg/m ³ Fe TWA: 1 mg/m ³ Mn STEL: 3 mg/m ³ Mn
Dipropylene glycol monomethyl ether 34590-94-8	STEL: 150 ppm TWA: 100 ppm S*	TWA: 100 ppm TWA: 600 mg/m ³ (vacated) TWA: 100 ppm (vacated) TWA: 600 mg/m ³ (vacated) STEL: 150 ppm (vacated) STEL: 900 mg/m ³ (vacated) S*	IDLH: 600 ppm TWA: 100 ppm TWA: 600 mg/m ³ STEL: 150 ppm STEL: 900 mg/m ³
Talc 14807-96-6	TWA: 2 mg/m ³	(vacated) TWA: 2 mg/m ³	IDLH: 1000 mg/m ³ containing no asbestos and <1% quartz TWA: 2 mg/m ³
Silicon dioxide 7631-86-9	10 mg/m ³	20 mppcf TWA; ((80)/(%) SiO2) mg/m ³)	IDLH: 3000 mg/m ³ TWA: 6 mg/m ³
Titanium dioxide 13463-67-7	TWA: 10 mg/m ³	TWA: 15 mg/m ³ total dust (vacated) TWA: 10 mg/m ³ total dust	IDLH: 5000 mg/m ³

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/Face Protection Safety glasses with side-shields.
Skin and Body Protection Long sleeved clothing. Protective gloves.
Respiratory Protection In case of inadequate ventilation wear respiratory protection. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn.

Hygiene Measures

When using, do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing. Keep away from food, drink and animal feeding stuffs. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Viscous liquid.	Appearance	Various.
Odor	Mild Solvent.	Odor Threshold	No information available.

<u>Property</u>	<u>Values</u>	<u>Remarks/ - Method</u>
pH	No data available	None known
Melting Point/Range	No data available	None known
Boiling Point/Boiling Range	No data available	None known
Flash Point	100 °C	None known
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limits in Air		
upper flammability limit	No data available	
lower flammability limit	No data available	
Vapor Pressure	No data available	None known
Vapor Density	No data available	None known
Specific Gravity	No data available	None known
Water Solubility	No data available	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	No data available	None known
Autoignition Temperature	No data available	None known
Decomposition Temperature	No data available	None known
Viscosity	No data available	None known

Flammable Properties Combustible material: may burn but does not ignite readily.

Explosive Properties No data available
Oxidizing Properties No data available

Other information

VOC Content (%) 29
VOC (g/l) 395

10. STABILITY AND REACTIVITY

Reactivity

No data available.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

None under normal processing.

Hazardous Polymerization

Hazardous polymerization does not occur.

Conditions to avoid

Incompatible products.

Incompatible materials

Strong oxidizing agents. Strong acids. Strong bases.

Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO₂). Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation There is no data available for this product.
Eye Contact There is no data available for this product.
Skin Contact May cause allergic skin reaction
Ingestion There is no data available for this product.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Naphtha (petroleum), heavy aromatic	> 5000 mg/kg (Rat)	> 2 mL/kg (Rabbit)	> 590 mg/m ³ (Rat) 4 h
Dipropylene glycol monomethyl ether	= 5230 mg/kg (Rat)	= 9500 mg/kg (Rabbit)	-
Silicon dioxide	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	>2.2 mg/L (Rat) 4 h
Trimethylolpropane triacrylate	> 5000 mg/kg (Rat)	= 5000 mg/kg (Rabbit)	-

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Delayed and immediate effects and also chronic effects from short and long term exposure

Sensitization May cause sensitization of susceptible persons. May cause sensitization by skin contact.
Mutagenic Effects No information available.
Carcinogenicity This product contains titanium dioxide in a non-respirable form. Inhalation of titanium dioxide is unlikely to occur from exposure to this product.

Chemical Name	ACGIH	IARC	NTP	OSHA
Silicon dioxide		Group 3		
Titanium dioxide		Group 2B		X

IARC: (International Agency for Research on Cancer)
Group 2B - Possibly Carcinogenic to Humans
Group 3 - Not Classifiable as to its Carcinogenicity to Humans

OSHA: (Occupational Safety & Health Administration)
X - Present

Reproductive Toxicity Contains a known or suspected reproductive toxin. May damage fertility or the unborn child
STOT - single exposure No information available.
STOT - repeated exposure No information available.
Target Organ Effects Liver. Kidney. Respiratory system. Eyes. Skin. Central nervous system (CNS). Blood. Gastrointestinal tract (GI).
Aspiration Hazard No information available.

Numerical measures of toxicity - Product

Acute Toxicity 97.0276% of the mixture consists of ingredient(s) of unknown toxicity.
The following values are calculated based on chapter 3.1 of the GHS document:
LD50 Oral 6121 mg/kg; Acute toxicity estimate
LD50 Dermal 86979 mg/kg; Acute toxicity estimate
Inhalation

dust/mist 22 mg/L; Acute toxicity estimate
 Vapor 89 mg/L; Acute toxicity estimate

12. ECOLOGICAL INFORMATION

Ecotoxicity

The environmental impact of this product has not been fully investigated.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Naphtha (petroleum), heavy aromatic 64742-94-5	EC50 72 h: = 2.5 mg/L (Skeletonema costatum)	LC50 96 h: = 19 mg/L static (Pimephales promelas) LC50 96 h: = 2.34 mg/L (Oncorhynchus mykiss) LC50 96 h: = 1740 mg/L static (Lepomis macrochirus) LC50 96 h: = 45 mg/L flow-through (Pimephales promelas) LC50 96 h: = 41 mg/L (Pimephales promelas)		EC50 48 h: = 0.95 mg/L (Daphnia magna)
Dipropylene glycol monomethyl ether 34590-94-8		LC50 96 h: > 10000 mg/L static (Pimephales promelas)		LC50 48 h: = 1919 mg/L (Daphnia magna)
Talc 14807-96-6		LC50 96 h: > 100 g/L semi-static (Brachydanio rerio)		
Silicon dioxide 7631-86-9	EC50 72 h: = 440 mg/L (Pseudokirchneriella subcapitata)	LC50 96 h: = 5000 mg/L static (Brachydanio rerio)		EC50 48 h: = 7600 mg/L (Ceriodaphnia dubia)

Persistence and Degradability No information available.

Bioaccumulation

Chemical Name	Log Pow
Dipropylene glycol monomethyl ether	-0.064

Other Adverse Effects

No information available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods Dispose of in accordance with federal, state, and local regulations

Contaminated Packaging Do not re-use empty containers.

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Naphthalene - 91-20-3	U165	Included in waste streams: F024, F025, F034, F039, K001, K035, K060, K087, K145		U165

14. TRANSPORT INFORMATION

Note: Not regulated in quantities less than 5 liter per individual container. See IATA SP A197, IMDG 2.10.2.7 and ADR SP 375.

DOT Not regulated

TDG

UN-Number UN3082
Proper Shipping Name Environmentally hazardous substance, liquid, n.o.s.
Hazard Class 9
Packing Group III

Description	UN3082, Environmentally hazardous substance, liquid, n.o.s. (Naphtha (petroleum), heavy aromatic), 9, III, Marine Pollutant
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MEX

UN-Number	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Hazard Class	9
Packing Group	III
Description	UN3082, Environmentally hazardous substance, liquid, n.o.s. (Naphtha (petroleum), heavy aromatic), 9, III

ICAO

UN-Number	UN3082
Proper shipping name	Environmentally hazardous substance, liquid, n.o.s.
Hazard Class	9
Packing Group	III
Description	UN3082, Environmentally hazardous substance, liquid, n.o.s. (Naphtha (petroleum), heavy aromatic), 9, III

IATA

UN-Number	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Hazard Class	9
Packing Group	III
ERG Code	9L
Description	UN3082, Environmentally hazardous substance, liquid, n.o.s. (Naphtha (petroleum), heavy aromatic), 9, III

IMDG/IMO

UN-Number	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Hazard Class	9
Packing Group	III
EmS No.	F-A, S-F
Description	UN3082, Environmentally hazardous substance, liquid, n.o.s. (Naphtha (petroleum), heavy aromatic), 9, III, Marine Pollutant

RID

UN-Number	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Hazard Class	9
Packing Group	III
Classification Code	M6
Description	UN3082, Environmentally hazardous substance, liquid, n.o.s. (Naphtha (petroleum), heavy aromatic), 9, III

ADR

UN-Number	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Hazard Class	9
Packing Group	III
Classification Code	M6
Tunnel Restriction Code	(E)
Description	UN3082, Environmentally hazardous substance, liquid, n.o.s. (Naphtha (petroleum), heavy aromatic), 9, III, (E)

ADN

UN-No	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Hazard Class	9
Packing Group	III
Classification Code	M6
Special Provisions	274, 335, 601

Description	UN3082, Environmentally hazardous substance, liquid, n.o.s. (1-Propanone, 2-methyl-1-[4-(methylthio)phenyl]-2-(4-morpholinyl)-, Naphthalene), 9, III
Limited Quantity	5 L

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
EINECS	Complies
ELINCS	Complies

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

U.S. Federal Regulations

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS-No	Weight %	SARA 313 - Threshold Values %
Diethylene glycol monoethyl ether acetate	112-15-2	10-30	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

U.S. State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals:

Chemical Name	CAS-No	California Prop. 65
Titanium dioxide	13463-67-7	Carcinogen
Naphthalene	91-20-3	Carcinogen

U.S. State Right-to-Know Regulations

"X" designates that the ingredients are listed on the state right to know list.

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Illinois	Rhode Island
Barium sulfate	X	X	X		
Dipropylene glycol monomethyl ether	X	X	X	X	X
Talc	X	X	X		X
Melamine	X	X	X		
Titanium dioxide	X	X	X	-	X
Phosphoric acid	X	X	X		X
1,2,4 Trimethylbenzene	X	X	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION

NFPA	Health Hazard 2	Flammability 1	Instability 0	Physical and Chemical Hazards -
HMIS	Health Hazard 2*	Flammability 1	Physical Hazard 0	Personal Protection X

**Indicates a chronic health hazard.*

Prepared By Product Stewardship
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Revision Note (M)SDS sections updated: 1.

General Disclaimer

The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of Safety Data Sheet