SAFETY DATA SHEET

Issuing Date 31-Aug-2015 **Revision Date** 20-Mar-2017 **Revision Number** 2

This document complies with the US OSHA Hazard Communication Standard (29 CFR 1910.1200), Canada WHMIS 2015 which includes the amended Hazardous Products Act (HPA) and the Hazardous Products Regulation (HPR), and Mexico's NMX-R-019-SC-2011.

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

GHS product identifier

Product Name **PSR-4000 BN, PSR-4000 BN (DG), PSR-4000 BN (HV), PSR-4000 BN Black, PSR-4000 BN Blue, PSR-4000 BN Clear, PSR-4000 BN Red, PSR-4000 BN White, PSR-4000 BN Yellow, PSR-4000 HG (DG), PSR-4000 BN Orange, PSR-4000 BN Purple, PSR-4000 BN (DG) DI, PSR-4000 BN (HV) DI, PSR-4000 BN Black DI, PSR-4000 BN Blue DI, PSR-4000 BN Clear DI, PSR-4000 BN HF DI, PSR-4000 BN Orange DI, PSR-4000 BN Purple DI, PSR-4000 BN Red DI, PSR-4000 BN White DI, PSR-4000 BN Yellow DI**

Other means of identification

Product Code(s) **400060, 400061, 400062, 400088, 400064, 400205, 400063, 400091, 400409, 400562, 800104, 800105, 800122L, 800121L, 800124L, 800125L, 800128L, 800140, 800129L, 800130L, 800126L, 800131L, 800132L**

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

Initial Supplier
Canadian address required

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 product is considered hazardous according to the criteria set within the US OSHA Hazard Communication Standard (29 CFR 1910.1200), Canada WHMIS 2015 which includes the amended Hazardous Products Act (HPA) and the Hazardous Products Regulation (HPR), and Mexico's NMX-R-019-SC-2011.

Acute Oral Toxicity	Category 4
Reproductive Toxicity	Category 1B
Flammable liquids	Category 4

Label Elements

Danger

Hazard Statements
Harmful if swallowed
May damage fertility or the unborn child
Combustible liquid.

Physical and Health Hazards Not Otherwise Classified
Not applicable.

Precautionary Statements

Prevention
- Wash face, hands and any exposed skin thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Use personal protective equipment as required.
- Keep away from heat/sparks/open flames/hot surfaces - No smoking.

General Advice
- If exposed or concerned: Get medical attention/advice

Ingestion
- IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- Rinse mouth.

Fire
- In case of fire: Use CO2, dry chemical, or foam for extinction.

Storage
- Store locked up.
- Store in a well-ventilated place. Keep cool.

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

Other information

Harmful to aquatic life with long lasting effects.

59.5% of the mixture consists of ingredient(s) of unknown toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %	Hazardous Material Information Review Act registry number (HMIRA registry #)	Date HMIRA filed and date exemption granted (if applicable)
Quartz	14808-60-7	23.47	-	-
Titanium dioxide	13463-67-7	14.53	-	-
Iron manganese oxide ((Fe,Mn)2O3)	75864-23-2	9.9	-	-
1-Propanone, 2-methyl-1-[4-(methylthio)phenyl]-2-(4-morpholinyl)-	71868-10-5	5.81	-	-
Barium sulfate	7727-43-7	4.27	-	-
Dipropylene glycol monomethyl ether	34590-94-8	4.17	-	-
Silicon dioxide	7631-86-9	2.08	-	-
Silica, amorphous, fumed, crystal-free	112945-52-5	2.08	-	-
Copper phthalocyanine monochloride	12239-87-1	1	-	-

4. FIRST AID MEASURES

Description of necessary first-aid measures

Eye Contact Rinse thoroughly with plenty of water, also under the eyelids. Keep eye wide open while rinsing. 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 breathing is difficult, give oxygen. If symptoms persist, call a physician.

Ingestion Do NOT induce vomiting. Rinse mouth. Drink plenty of water. If symptoms persist, call a physician.

Most important symptoms/effects, acute and delayed

Most Important Symptoms/Effects No information available.

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 (CO_2). Dry chemical. Dry powder.

Unsuitable Extinguishing Media No information available.

Specific Hazards Arising from the Chemical Combustible liquid. Vapors may travel to source of ignition and flash back. Risk of ignition. In the event of fire and/or explosion do not breathe fumes. Keep product and empty container away from heat and sources of ignition.

Explosion Data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge Yes.

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 Remove all sources of ignition. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Take precautionary measures against static discharges. Pay attention to flashback.

Environmental Precautions

Environmental Precautions Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevent entry into waterways, sewers, basements or confined areas. Do not flush into surface water or sanitary sewer system. 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 Take up with sand or other noncombustible absorbent material and place into containers for later disposal. Pick up and transfer to properly labeled containers. Use clean non-sparking tools to collect absorbed material. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Do not breathe vapors or spray mist. Do not eat, drink or smoke when using this product. Do not take internally. Wash thoroughly after handling. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). In case of insufficient ventilation, wear suitable respiratory equipment. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from heat, sparks and open flame. No smoking.

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. Keep away from heat and sources of ignition.

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
Quartz 14808-60-7	TWA: 0.025 mg/m^3 respirable particulate matter	TWA: 50 µg/m^3 Action Level: 25 µg/m^3 (vacated) TWA: 0.1 mg/m^3 respirable dust : (250)/(%SiO2 + 5) mppcf TWA respirable fraction : (10)/(%SiO2 + 2) mg/m^3 TWA respirable fraction	IDLH: 50 mg/m^3 respirable dust TWA: 0.05 mg/m^3 respirable dust

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
Iron manganese oxide ((Fe,Mn)2O3) 75864-23-2	TWA: 1 mg/m^3 Fe TWA: 0.02 mg/m^3 Mn respirable particulate matter TWA: 0.1 mg/m^3 Mn inhalable particulate matter	(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
Barium sulfate 7727-43-7	TWA: 5 mg/m^3 inhalable particulate matter, 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
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* S*	IDLH: 600 ppm TWA: 100 ppm TWA: 600 mg/m^3 STEL: 150 ppm STEL: 900 mg/m^3
Silica, amorphous, fumed, crystal-free 112945-52-5	10 mg/m^3	TWA: 20 mppcf; ((80)/(% SiO2) mg/m^3)	IDLH: 3000 mg/m^3 TWA: 6 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
Copper phthalocyanine monochloride 12239-87-1	TWA: 1 mg/m^3 Cu dust and mist	-	IDLH: 100 mg/m^3 Cu dust and mist TWA: 1 mg/m^3 Cu dust and mist

Appropriate engineering controls

Engineering Measures

Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/Face Protection Goggles.
Skin and Body Protection Lightweight protective clothing. Impervious gloves.
Respiratory Protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

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

Property	Values	Remarks/ - Method
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	74 °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	1.35	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 (%) 26
VOC (g/l) 340

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 Heat, flames and sparks. Incompatible products.

Incompatible materials Strong oxidizing agents. Strong acids. Strong bases.

Hazardous decomposition products Carbon dioxide (CO_2). Carbon monoxide (CO). Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation	There is no data available for this product.
Eye Contact	Contact with eyes may cause irritation.
Skin Contact	There is no data available for this product.
Ingestion	Harmful if swallowed.

Numerical measures of toxicity - Product

Unknown acute toxicity 59.5% 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 1871 mg/kg; Acute toxicity estimate
LD50 Dermal 53106 mg/kg; Acute toxicity estimate
Inhalation

dust/mist	117 mg/L; Acute toxicity estimate
Vapor	468 mg/L; Acute toxicity estimate

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Quartz	= 500 mg/kg (Rat)	-	-
Diethylene glycol monoethyl ether acetate	= 11 g/kg (Rat)	= 15100 µL/kg (Rabbit)	-
Titanium dioxide	> 10000 mg/kg (Rat)	-	-
Dipropylene glycol monomethyl ether	= 5400 µL/kg (Rat)	= 9500 mg/kg (Rabbit)	-
Silica, amorphous, fumed, crystal-free	= 3160 mg/kg (Rat)	-	-
Silicon dioxide	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	>2.2 mg/L (Rat) 4 h

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

Respiratory or Skin Sensitization No information available.
Germ Cell Mutagenicity No information available.
Carcinogenicity This product contains crystalline silica (quartz) in a non-respirable form. Inhalation of crystalline silica is unlikely to occur from exposure to this product. 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
Quartz	A2	Group 1	Known	X
Titanium dioxide		Group 2B	-	-
Silicon dioxide		Group 3		
Silica, amorphous, fumed, crystal-free		Group 3		

ACGIH: (American Conference of Governmental Industrial Hygienists)
A2 - Suspected Human Carcinogen

IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans
Group 3 - Not Classifiable as to its Carcinogenicity to Humans

NTP: (National Toxicity Program)
Known - Known Carcinogen

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

Reproductive Toxicity Contains a known or suspected reproductive toxin. Suspected of damaging fertility or the unborn child.
STOT - single exposure No information available.
STOT - repeated exposure No information available.
Aspiration Hazard No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Harmful to aquatic life with long lasting effects.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Dipropylene glycol monomethyl ether 34590-94-8		LC50 96 h: > 10000 mg/L static (Pimephales promelas)		LC50 48 h: = 1919 mg/L (Daphnia magna)
Silica, amorphous, fumed, crystal-free 112945-52-5	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)
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

Mobility No information available.

Other Adverse Effects No information available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods Should not be released into the environment. Dispose of in accordance with local regulations.

Contaminated Packaging Do not re-use empty containers.

14. TRANSPORT INFORMATION

Note: According to 49 CRF §173.150(f)(1), this material should be reclassified as NA1993, Combustible Liquid, NOS if it is shipped in bulk.

DOT Not regulated

TDG Not regulated

MEX Not regulated

IATA Not regulated

IMDG/IMO Not regulated

15. REGULATORY INFORMATION

International Regulations

Ozone depleting substances Not applicable
Persistent Organic Pollutants Not applicable
Hazardous Waste

Chemical Name	Basel Convention (Hazardous Wastes)

Copper phthalocyanine monochloride	Y22

The Rotterdam Convention (Prior Informed Consent) Not applicable

International Convention for the Prevention of Pollution from Ships (MARPOL) Not applicable

International Inventories

TSCA	Complies
DSL	Not determined
EINECS	Complies
ELINCS	Complies

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
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	21.74	1.0

SARA 311/312 Hazard Categories

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

Clean Water Act

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42):

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Copper phthalocyanine monochloride		X		

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
Quartz	14808-60-7	Carcinogen
Titanium dioxide	13463-67-7	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
Quartz	X	X	X	-	X
Titanium dioxide	X	X	X		X
Barium sulfate	X	X	X		
Dipropylene glycol monomethyl ether	X	X	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION

NFPA **Health Hazard** 1 **Flammability** 2 **Instability** 0 **Physical and Chemical Hazards** -

HMIS **Health Hazard** 1* **Flammability** 2 **Physical Hazard** 0 **Personal Protection** X

**Indicates a chronic health hazard.*

Prepared By
Product Stewardship
23 British American Blvd.
Latham, NY 12110
1-800-572-6501

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Revision Note Section 1 - Added DI names/numbers

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