SAFETY DATA SHEET

Issuing Date 23-Jan-2018 **Revision date** 23-Jan-2018 **Revision Number** 1

1. Identification

Product identifier

Product Name PSR-4000 CR01MW

Other means of identification

Product Code(s) 800569

Synonyms None

Recommended use of the chemical and restrictions on use

Recommended use Solder Mask

Restrictions on use No information available

Details of the supplier of the safety data sheet

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

Emergency telephone number

Emergency Telephone 775-885-9959

2. Hazard(s) 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.

Skin sensitization	Category 1
Reproductive toxicity	Category 2
Flammable liquids	Category 4

Label elements

Warning

Hazard statements
May cause an allergic skin reaction
Suspected of damaging fertility or the unborn child
Combustible liquid

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wear protective gloves/protective clothing/eye protection/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
Contaminated work clothing must not be allowed out of the workplace
Keep away from flames and hot surfaces. - No smoking

Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention
Specific treatment (see supplemental first aid instructions on this label)
Skin
IF ON SKIN: Wash with plenty of water and soap
If skin irritation or rash occurs: Get medical advice/attention
Wash contaminated clothing before reuse
Fire
In case of fire: Use CO2, dry chemical, or foam to extinguish

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

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

Other information
Causes mild skin irritation

3. Composition/information on ingredients

Substance

Not applicable.

Mixture

Chemical name	CAS No.	Weight-%	Hazardous Material Information Review Act registry number (HMIRA registry #)	Date HMIRA filed and date exemption granted (if applicable)
Titanium dioxide	13463-67-7	30-40	-	-
Dipropylene glycol monomethyl ether	34590-94-8	10-20	-	-
Talc	14807-96-6	5-10	-	-
Quartz	14808-60-7	1-5	-	-
2-Propenoic acid, 2,2-bis[[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl ester	4986-89-4	1-5	-	-
Silica	7631-86-9	1-5	-	-
Pentaerythritol triacrylate	3524-68-3	1-5	-	-
Aluminum hydroxide	21645-51-2	1-5	-	-

Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide	75980-60-8	1-5	-	-
1,6-Hexanediol diacrylate	13048-33-4	1-5	-	-
Phosphine oxide, phenylbis(2,4,6-trimethylbenzoyl)-	162881-26-7	< 1	-	-

4. First-aid measures

Description of 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.

Inhalation Remove to fresh air. If symptoms persist, call a physician. If breathing is difficult, give oxygen.

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 while removing all contaminated clothes and shoes. In the case of skin irritation or allergic reactions see a physician.

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

Self-protection of the first aider Use personal protective equipment as required.

Most important symptoms and effects, both acute and delayed

Symptoms Itching. Rashes. Hives. May cause allergic skin reaction.

Indication of any immediate medical attention and special treatment needed

Note to physicians May cause sensitization in susceptible persons. Treat symptomatically.

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO2). Dry chemical.

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. Product is or contains a sensitizer. May cause sensitization by skin contact.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge Yes.

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Evacuate personnel to safe areas. Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Remove all sources of

ignition. Take precautionary measures against static discharges. Keep people away from and upwind of spill/leak. Pay attention to flashback. In case of insufficient ventilation, wear suitable respiratory equipment.

Methods and material for containment and cleaning up

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

Methods for cleaning up Use personal protective equipment as required. Dam up. Take up with sand or other noncombustible absorbent material and place into containers for later disposal. Clean contaminated surface thoroughly.

7. Handling and storage

Precautions for safe handling

Advice on safe handling Use personal protection equipment. Avoid contact with skin, eyes or clothing. Do not breathe vapor or mist. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). In case of insufficient ventilation, wear suitable respiratory equipment. Ground and bond all lines and equipment associated with product system. All equipment should be non-sparking and explosion proof. Use only with adequate ventilation. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep in properly labeled containers. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep out of the reach of children. Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls/personal protection

Control parameters

Exposure Limits .

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Titanium dioxide 13463-67-7	TWA: 10 mg/m³	TWA: 15 mg/m³ total dust (vacated) TWA: 10 mg/m³ total dust	IDLH: 5000 mg/m³ TWA: 2.4 mg/m³ CIB 63 fine TWA: 0.3 mg/m³ CIB 63 ultrafine, including engineered nanoscale
Dipropylene glycol monomethyl ether 34590-94-8	STEL: 150 ppm TWA: 100 ppm S*	TWA: 100 ppm TWA: 600 mg/m³ (vacated) TWA: 100 ppm (vacated) TWA: 600 mg/m³ (vacated) STEL: 150 ppm (vacated) STEL: 900 mg/m³ (vacated) S* S*	IDLH: 600 ppm TWA: 100 ppm TWA: 600 mg/m³ STEL: 150 ppm STEL: 900 mg/m³
Talc 14807-96-6	TWA: 2 mg/m³ particulate matter containing no asbestos and <1% crystalline silica, respirable particulate matter	(vacated) TWA: 2 mg/m³ respirable dust <1% Crystalline silica, containing no Asbestos TWA: 20 mppcf if 1% Quartz or more;use Quartz limit	IDLH: 1000 mg/m³ TWA: 2 mg/m³ containing no Asbestos and <1% Quartz respirable dust
Quartz 14808-60-7	TWA: 0.025 mg/m³ respirable fraction	(vacated) TWA: 0.1 mg/m³ respirable dust : (30)/(%SiO2 + 2) mg/m³ TWA	IDLH: 50 mg/m³ respirable dust TWA: 0.05 mg/m³ respirable dust

		total dust : (250)/(%SiO2 + 5) mppcf TWA respirable fraction : (10)/(%SiO2 + 2) mg/m³ TWA respirable fraction	
Silica 7631-86-9	No data available	TWA: 50 µg/m³ excludes construction work, agricultural operations, and exposures that result from the processing of sorptive clays (vacated) TWA: 6 mg/m³ <1% Crystalline silica TWA: 20 mppcf : (80)/(% SiO2) mg/m³ TWA	IDLH: 3000 mg/m³ TWA: 6 mg/m³
Aluminum hydroxide 21645-51-2	TWA: 1 mg/m³ respirable particulate matter	-	-

Chemical name	Alberta	British Columbia	Ontario	Quebec
Titanium dioxide 13463-67-7	TWA: 10 mg/m³	TWA: 10 mg/m³ TWA: 3 mg/m³	TWA: 10 mg/m³	TWA: 10 mg/m³
Dipropylene glycol monomethyl ether 34590-94-8	TWA: 100 ppm TWA: 606 mg/m³ STEL: 150 ppm STEL: 909 mg/m³ Skin	TWA: 100 ppm STEL: 150 ppm Skin	TWA: 100 ppm STEL: 150 ppm Skin	TWA: 100 ppm TWA: 606 mg/m³ STEL: 150 ppm STEL: 909 mg/m³ Skin
Talc 14807-96-6	TWA: 2 mg/m³	TWA: 2 mg/m³	TWA: 2 mg/m³	TWA: 3 mg/m³
Quartz 14808-60-7	TWA: 0.025 mg/m³	TWA: 0.025 mg/m³	TWA: 0.10 mg/m³	TWA: 0.1 mg/m³
Aluminum hydroxide 21645-51-2		TWA: 1.0 mg/m³	TWA: 1 mg/m³	

Other information Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Goggles.

Hand protection Protective gloves.

Skin and body protection Lightweight protective clothing.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations When using do not eat, drink or smoke. Regular cleaning of equipment, work area and clothing is recommended. Keep away from food, drink and animal feeding stuffs. Wash hands and face before breaks and immediately after handling the product. Wash thoroughly after handling.

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state Liquid
Appearance No information available

Color	White
Odor	Mild Solvent
Odor threshold	No information available

Property	**Values**	**Remarks • Method**
pH	No data available	None known
Melting point / freezing point	No data available	None known
Boiling point / boiling range	No data available	None known
Flash point	75 °C / 167 °F	
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		None known
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
Relative density	1.62	
Water solubility	No data available	None known
Solubility in other solvents	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known

Other information

Flammable properties	Combustible material: may burn but does not ignite readily
Explosive properties	No information available
Oxidizing properties	No information available
Softening point	No information available
Molecular weight	No information available
VOC Content (%)	19
VOC	308 g/l
Liquid Density	No information available
Bulk density	No information available

10. Stability and reactivity

Reactivity No information available.

Chemical stability Stable under normal conditions.

Possibility of hazardous reactions None under normal processing.

Conditions to avoid Incompatible materials. Heat, flames and sparks.

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

Hazardous decomposition products Carbon monoxide. Carbon dioxide (CO2). Sulfur oxides.

11. Toxicological information

Information on likely routes of exposure

Product Information

Inhalation No known hazard by inhalation.

Eye contact Contact with eyes may cause irritation.

Skin contact May cause allergic skin reaction

Ingestion No known hazard by swallowing.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Itching. Rashes. Hives.

Numerical measures of toxicity
No information available

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Titanium dioxide 13463-67-7	> 10000 mg/kg (Rat)	-	-
Dipropylene glycol monomethyl ether 34590-94-8	= 5.35 g/kg (Rat)	= 9500 mg/kg (Rabbit)	-
Quartz 14808-60-7	= 500 mg/kg (Rat)	-	-
Silica 7631-86-9	= 7900 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 2.2 mg/L (Rat) 1 h
Pentaerythritol triacrylate 3524-68-3	= 1350 mg/kg (Rat)	= 4 mL/kg (Rabbit)	-
Aluminum hydroxide 21645-51-2	> 5000 mg/kg (Rat)	-	-
1,6-Hexanediol diacrylate 13048-33-4	= 5 g/kg (Rat)	= 3600 µL/kg (Rabbit)	-

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

Skin corrosion/irritation No information available.

Serious eye damage/eye irritation No information available.

Respiratory or skin sensitization May cause sensitization by skin contact.

Germ cell mutagenicity No information available.

Carcinogenicity Based on available data, the classification criteria are not met. This product contains titanium dioxide which is classified as a possible carcinogen when present as respirable dust. This is not relevant for this product since it is a liquid. This product contains crystalline silica (quartz) in a non-respirable form. Inhalation of crystalline silica is unlikely to occur from exposure to this product.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	ACGIH	IARC	NTP	OSHA
Titanium dioxide 13463-67-7	-	Group 2B	-	X
Talc 14807-96-6	-	Group 3	-	X
Quartz 14808-60-7	A2	Group 1	Known	X
Silica 7631-86-9	-	Group 3	Known	X

Legend

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 Carcinogenicity in Humans

NTP (National Toxicology Program)
Known - Known Carcinogen
OSHA (Occupational Safety and Health Administration of the US Department of Labor)
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 Not classified.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Dipropylene glycol monomethyl ether 34590-94-8	-	LC50: >10000mg/L (96h, Pimephales promelas)	-	LC50: =1919mg/L (48h, Daphnia magna)
Talc 14807-96-6	-	LC50: >100g/L (96h, Brachydanio rerio)	-	-
Silica 7631-86-9	EC50: =440mg/L (72h, Pseudokirchneriella subcapitata)	LC50: =5000mg/L (96h, Brachydanio rerio)	-	EC50: =7600mg/L (48h, Ceriodaphnia dubia)

Persistence and degradability No information available.

Bioaccumulation No information available.

Component Information

Chemical name	Partition coefficient
Dipropylene glycol monomethyl ether 34590-94-8	-0.064

Other adverse effects No information available.

13. Disposal considerations

Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

14. Transport information

DOT Not regulated

TDG Not regulated

MEX Not regulated

15. Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

International Inventories

TSCA	Contact supplier for inventory compliance status
DSL/NDSL	Contact supplier for inventory compliance status

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

US Federal Regulations

SARA 313
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	SARA 313 - Threshold Values %
Dipropylene glycol monomethyl ether - 34590-94-8	1.0
Diethylene glycol monoethyl ether acetate - 112-15-2	1.0

SARA 311/312 Hazard Categories
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications. Under the amended regulations at 40 CFR 370, EPCRA 311/312 Tier II reporting for the 2017 calendar year will need to be consistent with updated hazard classifications.

CWA (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.

US State Regulations

California Proposition 65
This product contains the following Proposition 65 chemicals:.

Chemical name	California Proposition 65

Titanium dioxide - 13463-67-7	Carcinogen
Quartz - 14808-60-7	Carcinogen
Cumene - 98-82-8	Carcinogen
Methyl alcohol - 67-56-1	Developmental

U.S. State Right-to-Know Regulations

US State Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Titanium dioxide 13463-67-7	X	X	X
Dipropylene glycol monomethyl ether 34590-94-8	X	X	X
Talc 14807-96-6	X	X	X
Diethylene glycol monoethyl ether acetate 112-15-2	X	-	X
Quartz 14808-60-7	X	X	X
Silica 7631-86-9	-	X	X
Melamine 108-78-1	-	X	X
Phosphoric acid 7664-38-2	X	X	X
Diisobutylketone 108-83-8	X	X	X
Cumene 98-82-8	X	X	X
Methyl alcohol 67-56-1	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. Other information

NFPA **Health hazards** 2 **Flammability** 2 **Instability** 0 **Physical and chemical properties** -

HMIS **Health hazards** 2 * **Flammability** 2 **Physical hazards** 0 **Personal protection** X

Chronic Hazard Star Legend ** = Chronic Health Hazard*

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation

Key literature references and sources for data used to compile the SDS

U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals

Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
RTECS (Registry of Toxic Effects of Chemical Substances)
World Health Organization

Issuing Date	23-Jan-2018
Revision date	23-Jan-2018
Revision Note	Initial Release.

Disclaimer

The information provided in this Safety Data Sheet 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text.

End of Safety Data Sheet