SECTION 1. IDENTIFICATION

Product name	:	Stencil Printable PCM45F (PCM45F Phase Change Interface Material - Stencil Printable Version)
Number	:	000000013851
Product Use Description	:	Thermal interface material
Manufacturer or supplier's details	:	Honeywell International Inc. 115 Tabor Road Morris Plains, NJ 07950-2546
For more information call	:	1-509-252-2200 1-480-293-9800 (Monday-Friday, 9:00am-5:00pm)
In case of emergency call	:	**Medical: 1-800-498-5701 or +1-303-389-1414**
	:	**Transportation (CHEMTREC): 1-800-424-9300 or +1-703-527-3887**
	:	
	:	(24 hours/day, 7 days/week)

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Form	:	viscous liquid
Color	:	grey
Odor	:	slight

Classification of the substance or mixture

Classification of the substance or mixture : Aspiration hazard, Category 1

GHS Label elements, including precautionary statements

Symbol(s) :

Signal word : Danger

Hazard statements : May be fatal if swallowed and enters airways.

Precautionary statements : **Prevention:**
Use personal protective equipment as required.

Response:
IF SWALLOWED: Immediately call a POISON CENTER/doctor.
Do NOT induce vomiting.

Storage:
Store locked up.

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

Carcinogenicity

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP, IARC, or OSHA.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature : Mixture

Chemical name	CAS-No.	Concentration
Aluminum	7429-90-5	70.00 - 90.00 %
Solvent	-	0.00 - 15.00 %
Proprietary ingredient	-	0.10 - 10.00 %
Proprietary ingredient	-	1.00 - 10.00 %
Proprietary resin	-	0.00 - 10.00 %
Proprietary ingredient	-	0.30 - 3.00 %
Proprietary ingredient	-	0.08 - 2.00 %
Butan-1-ol	71-36-3	0.20%

SECTION 4. FIRST AID MEASURES

Inhalation : Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Use oxygen as required, provided a qualified operator is present. Call a physician.

Skin contact : Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. Wash contaminated clothing before re-use. Call a physician if irritation develops or persists.

Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician if irritation develops or persists.

Ingestion	:	Do NOT induce vomiting. If a person vomits when lying on his back, place him in the recovery position. Immediate medical attention is required.

Notes to physician

Indication of immediate medical attention and special treatment needed, if necessary	:	Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Dry chemical Carbon dioxide (CO2) Water spray
Unsuitable extinguishing media	:	Do not use a solid water stream as it may scatter and spread fire.
Specific hazards during firefighting	:	In case of fire hazardous decomposition products may be produced such as: Carbon monoxide Carbon dioxide (CO2) Aluminum oxides
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus and protective suit.
Further information	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Wear personal protective equipment. Evacuate personnel to safe areas. Eliminate all ignition sources if safe to do so. Do not swallow. Avoid breathing vapours, mist or gas.

Avoid contact with skin, eyes and clothing.

Environmental precautions	:	Should not be released into the environment. Prevent further leakage or spillage if safe to do so.
Methods and materials for containment and cleaning up	:	Ventilate the area. Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE

Handling

Precautions for safe handling	:	Handle with care. Wear personal protective equipment. Do not swallow. Avoid breathing vapours, mist or gas. Avoid contact with skin, eyes and clothing.
Advice on protection against fire and explosion	:	Keep product and empty container away from heat and sources of ignition.

Storage

Conditions for safe storage, including any incompatibilities	:	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Protect from physical damage. Store away from incompatible substances.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Protective measures	:	Ensure that eyewash stations and safety showers are close to the workstation location.
Engineering measures	:	Ensure adequate ventilation.

Eye protection	:	Safety glasses with side-shields For leak, spill or other emergency: Goggles or face shield, giving complete protection to eyes
Hand protection	:	Protective gloves Gloves must be inspected prior to use. Replace when worn.
Skin and body protection	:	Apron Protective suit If splashes are likely to occur, wear: Complete suit protecting against chemicals
Respiratory protection	:	No personal respiratory protective equipment normally required. In case of insufficient ventilation, wear suitable respiratory equipment. For leak, spill or other emergency: Wear self-contained breathing apparatus
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product. Remove and wash contaminated clothing before re-use. Keep working clothes separately. Do not swallow. Avoid breathing vapours, mist or gas. Avoid contact with skin, eyes and clothing.

Exposure Guidelines

Components	CAS-No.	Value	Control parameters	Update	Basis
Aluminum	7429-90-5	TWA : Time weighted average	1 mg/m3	2008	ACGIH:US. ACGIH Threshold Limit Values
Further information	:	Form of exposure : Respirable fraction.			

Aluminum	7429-90-5	PEL : Permissible exposure limit	15 mg/m3	02 2006	OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
Further information	:	Form of exposure : Total dust. Expressed as : as Al			

Aluminum	7429-90-5	PEL : Permissible exposure limit	5 mg/m3	03 2016	OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
Further information	:	Form of exposure : Respirable fraction. Expressed as : as Al			

Aluminum	7429-90-5	TWA : Time weighted average	5 mg/m3	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)
Further information	:	Form of exposure : Fume. Expressed as : as Al			

Aluminum	7429-90-5	TWA : Time weighted average	15 mg/m3	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)
Further information	:	Form of exposure : Total dust. Expressed as : as Al			

Aluminum	7429-90-5	TWA : Time weighted average	5 mg/m3	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)
Further information	:	Form of exposure : Respirable dust. Expressed as : as Al			

Aluminum	7429-90-5	TWA : Time weighted average	5 mg/m3	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)
Further information	:	Form of exposure : Pyrophoric powder. Expressed as : as Al			

Aluminum	7429-90-5	REL : Recommended exposure limit (REL):	10 mg/m3	2016	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
Further information	:	Form of exposure : Total			

Aluminum	7429-90-5	REL : Recommended exposure limit (REL):	5 mg/m3	2016	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
Further information	:	Form of exposure : Respirable.			

Aluminum	7429-90-5	REL : Recommended exposure limit (REL):	5 mg/m3	2016	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
Further information	:	Form of exposure : Welding fume or pyrophoric powder. Expressed as : as Al			

Aluminum	7429-90-5	TWA : Time weighted average	15 mg/m3	03 2016	Z3:US. OSHA Table Z-3 (29 CFR 1910.1000)
Further information	:	Form of exposure : Total dust.			

Aluminum	7429-90-5	TWA : Time weighted average	5 mg/m3	03 2016	Z3:US. OSHA Table Z-3 (29 CFR 1910.1000)
Further information	:	Form of exposure : Respirable fraction.			

Aluminum	7429-90-5	TWA : Time weighted average	50 millions of particles per cubic foot of air	03 2016	Z3:US. OSHA Table Z-3 (29 CFR 1910.1000)
Further information	:	Form of exposure : Total dust.			

Aluminum	7429-90-5	TWA : Time weighted average	15 millions of particles per cubic foot of air	03 2016	Z3:US. OSHA Table Z-3 (29 CFR 1910.1000)
Further information	:	Form of exposure : Respirable fraction.			

Aluminum	7429-90-5	TWA : Time weighted average	1 mg/m3	2008	ACGIH:US. ACGIH Threshold Limit Values
Further information	:	Form of exposure : Respirable fraction.			

Aluminum	7429-90-5	PEL : Permissible exposure limit	15 mg/m3	02 2006	OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
Further information	:	Form of exposure : Total dust. Expressed as : as Al			

Aluminum	7429-90-5	PEL : Permissible exposure limit	5 mg/m3	03 2016	OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
Further information	:	Form of exposure : Respirable fraction. Expressed as : as Al			

Aluminum	7429-90-5	TWA : Time weighted average	5 mg/m3	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)
Further information	:	Form of exposure : Fume. Expressed as : as Al			

Aluminum	7429-90-5	TWA : Time weighted average	15 mg/m3	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)
Further information	:	Form of exposure : Total dust. Expressed as : as Al			

Aluminum	7429-90-5	TWA : Time weighted average	5 mg/m3	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)
Further information	:	Form of exposure : Respirable dust. Expressed as : as Al			

Aluminum	7429-90-5	TWA : Time weighted average	5 mg/m3	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)
Further information	:	Form of exposure : Pyrophoric powder. Expressed as : as Al			

Aluminum	7429-90-5	REL : Recommended exposure limit (REL):	10 mg/m3	2016	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
Further information	:	Form of exposure : Total			

Aluminum	7429-90-5	REL : Recommended exposure limit (REL):	5 mg/m3	2016	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
Further information	:	Form of exposure : Respirable.			

Aluminum	7429-90-5	REL : Recommended exposure limit (REL):	5 mg/m3	2016	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
Further information	:	Form of exposure : Welding fume or pyrophoric powder. Expressed as : as Al			

Aluminum	7429-90-5	TWA : Time weighted average	15 mg/m3	03 2016	Z3:US. OSHA Table Z-3 (29 CFR 1910.1000)
Further information	:	Form of exposure : Total dust.			

Aluminum	7429-90-5	TWA : Time weighted average	5 mg/m3	03 2016	Z3:US. OSHA Table Z-3 (29 CFR 1910.1000)
Further information	:	Form of exposure : Respirable fraction.			

Aluminum	7429-90-5	TWA : Time weighted average	50 millions of particles per cubic foot of air	03 2016	Z3:US. OSHA Table Z-3 (29 CFR 1910.1000)
Further information	:	Form of exposure : Total dust.			

Aluminum	7429-90-5	TWA : Time weighted average	15 millions of particles per cubic foot of air	03 2016	Z3:US. OSHA Table Z-3 (29 CFR 1910.1000)
Further information	:	Form of exposure : Respirable fraction.			

Naphtha (petroleum), hydrotreated heavy	64742-48-9	REL : Recommended exposure limit (REL):	400 mg/m3 (100 ppm)	2010	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
Naphtha (petroleum), hydrotreated heavy	64742-48-9	PEL : Permissible exposure limit	400 mg/m3 (100 ppm)	02 2006	OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
Naphtha (petroleum), hydrotreated heavy	64742-48-9	TWA : Time weighted average	400 mg/m3 (100 ppm)	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)
Butan-1-ol	71-36-3	TWA : Time weighted average	(20 ppm)	2008	ACGIH:US. ACGIH Threshold Limit Values

Butan-1-ol	71-36-3	Ceil_Time : Ceiling Limit Value and Time Period (if specified) :	150 mg/m3 (50 ppm)	2005	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
Butan-1-ol	71-36-3	SKIN_DES : Skin designation:	Can be absorbed through the skin.	2005	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
Butan-1-ol	71-36-3	PEL : Permissible exposure limit	300 mg/m3 (100 ppm)	02 2006	OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
Butan-1-ol	71-36-3	SKIN_FINAL : Skin designation (Final Rule Limit applies):	Can be absorbed through the skin.	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)
Butan-1-ol	71-36-3	Ceiling : Ceiling Limit Value:	150 mg/m3 (50 ppm)	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state : viscous liquid

Color	:	grey
Odor	:	slight
pH	:	Note: no data available
Melting point/range	:	Note: no data available
Boiling point/boiling range	:	Note: no data available
Flash point	:	> 302 °F (150 °C)
Lower explosion limit	:	Note: no data available
Upper explosion limit	:	Note: no data available
Vapor pressure	:	Note: no data available
Vapor density	:	Note: no data available
Density	:	Note: no data available
Water solubility	:	Note: no data available
Ignition temperature	:	Note: no data available
Bulk density	:	Note: Not applicable

SECTION 10. STABILITY AND REACTIVITY

Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Hazardous polymerisation does not occur.
Conditions to avoid	:	Keep away from heat and sources of ignition. Keep away from direct sunlight.
Incompatible materials	:	Oxidizing agents Peroxides Chlorates, inorganic, n.o.s. Perchlorates permanganates, e.g. potassium permanganate Nitrates Reducing agents Acids
Hazardous decomposition products	:	In case of fire hazardous decomposition products may be produced such as: Carbon monoxide Carbon dioxide (CO2) Aluminum oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Acute oral toxicity	:	LD50: > 5,000 mg/kg Species: Rat Test substance: Resin
Acute inhalation toxicity	:	Note: no data available
	:	Acute toxicity estimate: > 40 mg/l , vapour Exposure time: 4 h Method: Calculation method

Acute dermal toxicity	:	LD50: > 3,600 mg/kg Species: Rabbit Test substance: Wax.
	:	LD50: > 3,160 mg/kg Species: Rabbit Test substance: Resin
Skin irritation	:	Note: no data available
Eye irritation	:	Note: no data available
Sensitisation	:	Note: no data available
Repeated dose toxicity	:	Note: no data available
Genotoxicity in vitro	:	Note: no data available
Genotoxicity in vivo	:	Note: no data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity effects

Toxicity to fish	:	LC50: Species: not specified Note: no data available
Toxicity to daphnia and other aquatic invertebrates	:	LC50: Species: not specified Note: no data available

Toxicity to algae	:	LC50: Species: not specified Note: no data available
Toxicity to bacteria	:	LC50: Species: not specified Note: no data available

Elimination information (persistence and degradability)

Biodegradability	:	Note: no data available

Further information on ecology

Additional ecological information	:	We have no quantitative data concerning the ecological effects of this product.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods	:	Observe all Federal, State, and Local Environmental regulations.

SECTION 14. TRANSPORT INFORMATION

DOT Not dangerous goods

TDG Not dangerous goods

IATA Not dangerous goods

IMDG Not dangerous goods

SECTION 15. REGULATORY INFORMATION

Inventories

US. Toxic Substances Control Act	:	On TSCA Inventory
Australia. Industrial Chemical (Notification and Assessment) Act	:	On the inventory, or in compliance with the inventory
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL)	:	All components of this product are on the Canadian DSL
Japan. Kashin-Hou Law List	:	Not in compliance with the inventory
Korea. Existing Chemicals Inventory (KECI)	:	On the inventory, or in compliance with the inventory
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	:	Not in compliance with the inventory
China. Inventory of Existing Chemical Substances	:	On the inventory, or in compliance with the inventory
New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand	:	Not in compliance with the inventory

National regulatory information

SARA 302 Components	:	No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 Components	:	The following components are subject to reporting levels established by SARA Title III, Section 313:
	:	Aluminum 7429-90-5
SARA 311/312 Hazards	:	Acute Health Hazard

California Prop. 65 :

WARNING: This product can expose you to chemicals, listed below, known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Formaldehyde	50-00-0
Ethylbenzene	100-41-4

Massachusetts RTK	: Aluminum	7429-90-5
	: Butan-1-ol	71-36-3
	: Cyclohexane	110-82-7
	: Ethylbenzene	100-41-4
	: Formaldehyde	50-00-0
New Jersey RTK	: Aluminum	7429-90-5
	: Butan-1-ol	71-36-3
	: Cyclohexane	110-82-7
	: Ethylbenzene	100-41-4
	: Formaldehyde	50-00-0
Pennsylvania RTK	: Aluminum	7429-90-5
	: Butan-1-ol	71-36-3
	: Cyclohexane	110-82-7
	: Ethylbenzene	100-41-4
	: Formaldehyde	50-00-0

SECTION 16. OTHER INFORMATION

		HMIS III	NFPA
Health hazard	:	1	1
Flammability	:	1	1
Physical Hazard	:	0	
Instability	:		0

Hazard rating and rating systems (e.g. HMIS® III, NFPA): This information is intended solely for the use of individuals trained in the particular system.

Further information

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. Final determination of suitability of any material is the sole responsibility of the user. This information should not constitute a guarantee for any specific product properties.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.
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