



PC-21

Technical Data Sheet

Appearance:	White crystalline solid or clear liquid above -21°C
Chemical composition:	Hydrated sodium and calcium chlorides (min.90%)
Density:	1.11 g/cm <sup>3</sup> at -25°C (est.)
Specific gravity:	1.17 at -10°C
Melting point:	-21°C
Latent heat of fusion:	222 kJ/kg (isothermal max)
Heat capacity (liquid):	3.20 kJ/kg°C
Heat capacity (solid):	2.10 kJ/kg°C
Thermal conductivity (solid):	TBA J/sec/cm°C
Thermal conductivity (liquid):	TBA J/sec/ cm°C
Non combustible	
Non flammable	
Non Dangerous Goods classification – MSDS available on application.	
Materials compatibility up to 40oC:	Most common thermo resins and thermo-set resin
Glass, concrete, rubber and hardwoods.	
Not recommended for extended contact with iron, some stainless steels, aluminum or copper-based alloys.	

# MATERIAL SAFETY DATA SHEET

PC-21

Phase Change Material

Revision: Dec 2012

## PRODUCT IDENTIFICATION

Name:	PC-21
UN No.:	None allocated
CAS Registry No.:	None allocated
Dangerous Goods Class:	Non dangerous
Hazchem Code:	None allocated
EPG:	None allocated
IMDG:	None allocated
Packaging Group:	None allocated

## PHYSICAL DESCRIPTION AND PROPERTIES

Appearance:	White-cream crystalline solid. Clear to milky white above melting point.
Composition:	Hydrated sodium and calcium chloride (min. 90%) Proprietary salts (max. 10%)
Melting Point:	-21°C
Boiling point:	>1600°C (anhydrous)
Vapour pressure:	NA
Flammability Limits LEL:	Not applicable
UEL:	Not applicable
Autoignition temperature:	NA
Solubility:	Soluble in water and slightly soluble in some alcohols.
pH:	6-10

## HEALTH HAZARD INFORMATION

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### 1. Acute Health Effects

#### Ingestion

Single dose oral toxicity is low. Ingestion may cause gastrointestinal irritation, diarrhea and nausea. (Acute oral LD<sub>50</sub> for rats is > 3500mg/kg)

#### Eye

May cause mild to moderate irritation and some corneal injury in the most severe and untreated cases.

#### Skin

Short single exposure is unlikely to cause skin irritation. Prolonged or repeated skin exposure may cause mild or moderate skin irritation.

#### Inhalation

Vapours do not pose an acute health risk due to non volatility of salts. Dust may cause irritation to upper respiratory tract.

### 2. Chronic Health Effects

The components are not listed by IARC, NTP or PHSA as carcinogens for hazard communication purposes.

### 3. First Aid

#### Swallowing

If swallowed give plenty of water. Treat symptomatically and consult a physician.

#### Eye

Irrigate with water immediately and continuously for at least 15 minutes. Consult a physician.

#### Skin

Wash affected area with water either locally or under shower. If irritation persists consult a physician.

#### Inhalation

In the event of dust inhalation remove patient to well ventilated fresh air area. Rinse mouth and gargle with water. Consult physician if irritation persists.

## PRECAUTIONS FOR USAGE

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### 1. Exposure standards

Exposure limits have not been established on TLV basis for continuously working with the product.

### 2. Engineering Controls.

Ensure adequate ventilation and standard dust control provisions.

### 3. Personal Protection

No special PPG equipment is required for the handling of PC-21. However, good manufacturing practice will include: safety glasses and gloves, and a dust mask if solid product is being broken down mechanically. The product has a negligible vapour pressure.

### 4. Flammability

The product is not combustible and no special precautions are required in this respect.

## SAFE HANDLING INFORMATION

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### 1. Storage and Transportation

Transport and store the product under dry and cool conditions - ideally below 30°C. Container should be sealed to air tightness. The containers should be suitably flexible to retain containment integrity with a variation in volume of the product of ~10% between its solid and liquid phases above and below -21°C.

### 2. Spills and Disposal

Recovery of spilt solids or liquid should be placed in suitable, labeled containers for re-use. Wash down affected area with excess water. Where it is not possible to reuse the recovered product then disposal should observe all local, state and federal regulations governing the disposal of calcium and sodium chlorides

### 3. Fire and Explosion Hazard

If it heated sufficiently due to proximity to a fire, it can decompose to give off noxious gases containing hydrogen chloride and chlorine. Where possible the product should be removed from the proximity to a fire.

### 4. Packaging and Labeling

There are no labeling requirements specified by regulatory authorities for PC-21

#### **Safety phrase recommended include:**

- Keep out of reach of children
- Avoid contact with skin and eyes
- If swallowed seek medical advice

## Disclaimer:

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