

FP-16 maintains a frozen environment of -16 Centigrade (3.2 Fahrenheit).
FP-16 is non-toxic, reusable and replaces dry ice.

FP-16 Technical Data Sheet

Appearance: White crystalline solid or clear liquid above -16°C

Chemical composition: Hydrated sodium and ammonium chlorides
(min.90%)

Density: 1.02 g/cm³ at -20°C

Specific gravity: 1.06 at -5°C

Melting point: -16°C

Latent heat of fusion: 289 kJ/kg (isothermal max)

Heat capacity (liquid): 3.20 kJ/kg°C

Heat capacity (solid): 2.00 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 40°C:

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.

PHASE CHANGE PRODUCTS PTY LTD

ABN 31 116 015 751

c/- Norvest Corporate P/L Grd Floor, 16 Ord Street West Perth, WA 6005

Telephone: +618 9324 8555 Facsimile: +618 9324 8560 Email: pcp@norvest.com.au

MATERIAL SAFETY DATA SHEET PC-16 Phase Change Material Revision: February 2008

PHYSICAL DESCRIPTION AND PROPERTIES:

Appearance:

Composition: (excluding water) Melting Point:

Boiling point:

Vapour pressure: Flammability Limits LEL: UEL: Autoignition temperature: Solubility: pH:

STABILITY AND REACTIVITY

Stability

White-cream crystalline solid. Clear to milky white above melting point.

Sodium and ammonium chloride (min. 90%) Proprietary salts (max. 10%)

-16 °C

>500 C (anhydrous) NA

Not applicable Not applicable

NA

Soluble in water and slightly soluble in some alcohols. 5-8 Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products

Burning may produce noxious gases containing ammonia, chlorine and nitrogen oxide.

Hazardous Polymerization Will not occur.

Incompatibilities

Can react with caustic alkalis and strong oxidizing agents. In the case of alkalis there is the possibility of ammonia vapour release.

Conditions to Avoid Heat, incompatibles.

HEALTH HAZARD INFORMATION 1. Acute Health Effects Ingestion

Single dose oral toxicity is low. Ingestion may cause gastrointestinal irritation, diarrhea and nausea. (Acute oral LD50 for rats is > 3500mg/ kg)

Eye

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

Alle Angaben gelten vorbehaltlich Druckfehlern. [All information is subject to misprints.](#)

Für Bestellungen oder bei Rückfragen kontaktieren Sie uns bitte unter | For order or inquiries please contact us at:

B&W International GmbH | Heike Brückmann | **Fon** 0 54 51 / 89 46-160 | **Fax** 0 54 51 / 89 46-444
heike.brueckmann@b-w-international.com | www.bag2zero.com | www.b-w-international.com

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.

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 any discomfort associated with vapour inhalation remove patient to a well ventilated fresh air area.

Rinse mouth and gargle with water. Consult a physician if irritation persists.

PRECAUTIONS FOR USAGE

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-16. However, good manufacturing practice will include safety glasses and gloves.

4. Flammability

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

SAFE HANDLING INFORMATION

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 -16 °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 ammonium and sodium chlorides.

Alle Angaben gelten vorbehaltlich Druckfehlern. [All information is subject to misprints.](#)

Für Bestellungen oder bei Rückfragen kontaktieren Sie uns bitte unter | For order or inquiries please contact us at:

B&W International GmbH | Heike Brückmann | **Fon** 0 54 51 / 89 46-160 | **Fax** 0 54 51 / 89 46-444
heike.brueckmann@b-w-international.com | www.bag2zero.com | www.b-w-international.com

3. Fire and Explosion Hazard.

If PC-16 is heated sufficiently due to proximity to a fire, it can decompose to give off noxious gases containing ammonia, chlorine and nitrogen oxide. 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 FP-16.

Safety phrase recommended include:

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

Disclaimer:

Phase Change Products Pty. Ltd. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product.

Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. PHASE CHANGE PRODUCTS Pty. Ltd. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, PHASE CHANGE PRODUCTS Pty. Ltd. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.