



WINDFORM™ PS

Material Safety Data Sheet

General

This data sheet corresponds to the instructions in the 91/155/EEC directive, including all currently valid amendments.

Revised on: 1/04/2005

1 Chemical Product and Company Identification

Product name: Windform™ PS
Chemical Family: Polymer powder
Product Use: Material only and exclusively for Rapid Prototyping Selective Laser Sintering
Supplier: C.R.P. Technology s.r.l.
Address: Via Cesare della Chiesa 21
I-41100 Modena
Telephone: +39 059 821135
Fax: +39 059 822071
E-mail: info@crptechnology.com
Emergency number: +39 059 821135

2 Composition / information on ingredients

This product is not hazardous according to 29CFR 1910.1200 (Hazard Communication Standard) and it is not classified in European Union Directives 67/548/EEC and 1999/45/EC. None of the ingredients are classified as well.

3 Hazards identification

**WARNING: CAUSES IRRITATION. WEAR APPROPRIATE PROTECTIVE EQUIPMENT.
FOR INDUSTRIAL USE ONLY.**

Dust from Windform material is expected to be the primary hazard in an occupational exposure. Follow good industrial hygiene practices and exercise care when dumping drums, sweeping, mixing or doing other tasks which can create dust. Wear appropriate protective equipment for nuisance dust when handling the powder. Avoid contact with eyes, skin and clothing. Use with adequate ventilation. Wash thoroughly after handling.

Product may form explosive dust/air mixtures if high concentration of product dust is suspended in air. This

Primary routes of entry: eye, skin, ingestion, inhalation.
Eye contact: Use safety glasses. Dust or vapours that contact the eye may be irritating or cause mechanical injury. In case of contact with eyes rinse thoroughly with plenty of water and seek medical advice.
Skin contact: Use protective latex (rubber) gloves. May cause mild irritation. In case of contact with skin wash with warm water. Consult a doctor if skin irritation persists. Molten material will produce burns.
Ingestion: Cause irritation to the digestive tract.
Inhalation: NIOSH approved respirator for dust if PEL is exceeded. Dust or vapours may be irritating to the respiratory tract. Ensure supply of fresh air.
Chronic: Prolonged or repeated exposure may cause more severe irritation.
Toxicology carcinogenicity: No.



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Medical conditions aggravated by exposure: may aggravate an existing dermatitis or respiratory condition.

Potential environmental Effects: not known.

4 First aid measures

Inhalation: If a problem develops or vapours are inhaled due to thermal decomposition of the product, bring those affected to fresh air and consult a physician. Victim to lie down in the recovery position, cover and keep him warm. If not breathing, give artificial respiration.

Skin contact: Immediately wash with soap and water affected areas. See physician if irritation persists. Wash contaminated clothing before reuse. Do NOT use solvents or thinners.

Eye contact: Immediately wash eyes with flowing water for at least 15 minutes and consult a physician.

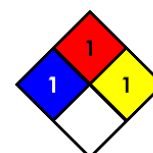
Ingestion: If large quantities of this material are swallowed, induce vomiting as directed by medical personnel, never give anything by mouth to an unconscious person. See physician if a problem develops.

Advice to doctor: Treat symptomatically.

5 Fire and Explosion Data and Fire-fighting measures

Flash Point: NA
Upper Flammable Limit (UFL): NA
Auto Ignition: 450-600°C

Method Used: NA
Lower Flammable Limit (LFL): 40-70g/m³
Rate of Burning: NA



NFPA Ratings
0 = Minimal
1 = Slight
2 = Moderate
3 = Serious
4 = Severe

Fire and explosion hazards: Avoid dust clouds and accumulation to minimize the potential for explosions. Keep away from heat, sparks, flame and all other ignition sources.

General Fire Hazards: Dusts can form an explosive mixture with air.

Hazardous Combustion Products: Thermal decomposition products can include CO₂, CO, NO_x, and smoke.

Extinguishing Media: Use water mist, dry chemical, carbon dioxide, or chemical foam.

Fire Fighting Equipment/Instructions: Wear full protective clothing, including helmet, self-contained positive-pressure or pressure-demand breathing apparatus, protective clothing and facemask. Move container from area if it can be done without risk. Do not use high-volume water jet or high-pressure inert gas since pressure may cause dusting. Avoid inhalation of material or combustion by-products. Dust accumulation from this product can present an explosion hazard in the presence of an ignition source. For additional information, refer to National Fire Protection Association (NFPA) pamphlet #654, "Prevention of Fire and dust Explosion in the Chemical, Dye, Pharmaceutical and Plastics Industry".



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6 Accidental release measures

Personal precautions:	Avoid formation of dust clouds. Keep away from ignition sources. Do not breathe vapours/dust. Exclude non essential personnel. Ensure adequate ventilation. Wear protective clothing (impervious gloves and apron). Also use dust-tight goggles and approved masks/respirators as described in Section 8.
Methods for cleaning up:	Avoid dust formation while sweeping with natural fibres bristles or vacuum into closed container with explosion-proof equipment with appropriate electrical classification. Do not use water or liquid detergents. Due regard to the electrically conductive nature of the product. Contamination of electrical equipment should be avoided. If a vacuum system is used in the cleanup, it should be fully capable of handling a conductive material with no risk of electrical shock to the operator.

7 Handling and storage

Handling:	Prevent the formation of dust. In case of thermal processing, provide extraction of the vapours or sufficient ventilation. Due regard to the electrically conductive nature of the product.
Fire and explosion protection:	Protect against electrostatic charges. Keep away from ignition sources and heat. Dust and air can create explosive mixtures!
Storage:	Store in a dry and cool place. Keep containers tightly sealed. Protect from humidity and water. Keep away from direct sunlight. Store in a place accessible by authorised persons only. Do not smoke. No further special precautions required.
Storage Temperature:	10 - 30 C

8 Exposure controls / personal protection

This substance is regulated by OSHA as a Particulate Not Otherwise Regulated (PNOR).

OSHA Permissible Exposure Limits (PEL):	15 mg/m ³ as total nuisance particulates; 5 mg/m ³ as respirable fraction.
ACGIH Threshold Limit Values TLV :	10 mg/ m ³ as total nuisance particulates; 3 mg/m ³ as respirable fraction.
OES for nuisance dust:	10 mg/m ³ (total dust), 4 mg/m ³ (respirable dust). Check local regulations in case different limits apply.
NIOSH :	None
Carcinogen :	No
Hygiene practices:	Do not inhale, eat, drink, smoke while working. Wash hands after use and use barrier skin cream.
Respiratory protection:	Usage of dust filters class P1 is recommended.



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Hand protection:	Adequate butyl rubber gloves, > 120 min (EN 374). In case of thermal processing, heat insulating protective gloves are to be used.
Eye protection:	Safety glasses with side shields are recommended. Dust-tight goggles in case of dusty operations and areas where vapours accumulate.
Skin protection:	Protective work clothes.
Other protective Equipment:	Provide local exhaust ventilation where heat can cause polymer breakdown and where there is a need to draw dusts and fumes from worker breathing zones. Dust accumulation is possible, wear conductive-soled shoes or ground strap.

9 Physical and chemical properties

Form:	Fine powder
Colour:	White
Odour:	Odourless
Bulk Density	0.45 g/cm ³
Boiling temperature:	Not applicable
Flash point:	NA
Explosion limits:	Dusts with air can create an explosive mixture.
Vapor Density	345-360 °C
Solubility in water (20 °C):	Insoluble

10 Stability and reactivity data

Hazardous decomposition products:	At high temperatures CO, CO ₂ , smoke and NO _x may be formed.
Thermal decomposition:	> 300 °C
Hazardous reactions:	reactions with acids and strong oxidizing agents.
Incompatibility (materials to avoid):	Water, acids and strong oxidising agents. Exposure to electrical equipment and circuitry. Strong oxidizers, excessive or localized heating.

11 Toxicological information

General Product Information: None.
None of this product components are known to be listed by ACGIH, IARC, OSHA, NIOSH, or NTP.



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12 Ecological information

This product is not classified as dangerous to the environment.

Component Analysis - Ecotoxicity - Aquatic Toxicity: No ecotoxicity data are available for this product, however, it is not predicted to be toxic to aquatic organisms or to cause long-term adverse effects in the aquatic environment.

Mobility: No information available for product.
Persistence & Degradation: No information available for product.
Bioaccumulation: No information available for product.
Other Adverse Effects: No information available for product.
Environmental Fate: No information available for product.

13 Disposal considerations

Waste disposal method: Dispose of waste in a licensed landfill or by incineration in accordance with local regulations. Do not allow product to reach sewage system. Do not dispose the product with household garbage.

US EPA Waste Number & Descriptions

No EPA Waste Numbers are applicable for this product. This product is not defined or designates as hazardous by current provisions of RCRA – 40CFR261.

For this product, no waste code-number in accordance with the European waste list is established.

The waste code-number has to be defined in accordance with the European waste list (EU decision on the waste list 2000/532/EC) in cooperation with the disposer.

Packaging that cannot be cleaned should be disposed of as product.

14 Transport information

Shipping name: Synthetic resin powders.

Land transport ADR/RID

ADR/RID Class: No hazardous according UN-regulations.

Maritime Transport IMDG

IMDG Class: No hazardous according UN-regulations.
Marine pollutant: No.

Air transport ICAO-TI and IATA-DGR

ICAO/IATA Class: No hazardous according UN-regulations.

15 Regulatory information

European Union Regulatory Information

According to European Union Directives 67/548/EEC and 1999/45/EC, this preparation is not classified.

US FEDERAL

TSCA: All materials are listed on the TSCA Inventory
SARA 302 EHS List (40 CFR 355 Appendix A): Not listed



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SARA 313 (40 CFR 372.65): Not listed

CERCLA (40 CFR 302.4): Not listed

STATE RIGHT-TO-KNOW STATUS

The following components appear on one or more of the following state hazardous substances lists:

Component	CA Prop. 65	MA	MN	NJ	PA	RI
None listed	--	--	--	--	--	--

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List: None

Component Analysis – Inventory

Component/CAS	EC #	EEC	CAN	TSCA	NLP
Polymer	-Yes	Einecs	DSL	Yes	No

16 Other information

This data sheet applies only to the supplied product in accordance with specification by CRP Technology srl. If compounds or mixtures with other products are made, ensure that no new hazards arise.

The information contained in this data sheet has been made in good faith and is supported by the latest knowledge concerning this product at the time this MSDS was printed. However, individual statements will be revised. Based on the preceding information, which corresponds to the current state of our knowledge and experiences, it is our intention to describe our product regarding any kind of safety requirements but do not connect this with any warranty or assurance of characteristics.

The consumer's attention is brought to the possible risks during use other than that originally assumed.

This MSDS may only be used and reproduced for purposes of prevention and safety.

The enumeration of the texts regarding legislation, orders and administrative regulations may not be seen as complete.

The receiver of the product is referred to the entire official texts concerning the use, the storage, and the handling of the product, for which he alone is responsible.

The user of the product is obliged to transfer the necessary information in the form of this safety data sheet to all persons who come into contact with the product (during usage, storage, cleaning of the containers, various employments), who are responsible for the industrial safety, as well as for environmental and health protection.

DISCLAIMER OF LIABILITY: The following supersedes any provision in your company's forms, letters, and papers. CRP Technology makes no warranty whether expressed or implied, including warranties of merchantability or of fitness for a particular purpose for this product. No statements or recommendations contained in the product literature are to be construed as inducements to infringe any relevant patent now or hereafter in existence. Under no circumstances shall CRP Technology be liable for incidental, consequential, or other damages from alleged negligence, breach or warranty, strict liability or any other theory, arising out of the use or handling of this product. The sole liability of CRP Technology for any claims arising out of the manufacture, use or sale of its products shall be for the buyer's purchase price.