



# WINDFORM™ LX

## Material Safety Data Sheet

### General

May be used to comply with OSHA's Hazard Communication Standard, Standard must be reviewed for specific requirements.

Revised on: 27/04/2009

### 1 Chemical Product and Company Identification

Product name: Windform™ LX  
Chemical Family: Polyamide Composite  
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

Chemical characterization: mixed compound of Polyamide resin, graphite and glass Fibers.

Hazardous ingredients:		EU Classification	
Chemical Identity	percent	symbol	R-Phase
Polyamide Resin Cas nb. 25038-74-8	40 - 60		
Glass fibres Cas nb. 65997-17-3	40 - 60		
Graphite Cas nb. 7782-42-5	1 - 5		

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

OSHA Permissible Exposure Limits (PEL): 15 mg/m<sup>3</sup> as total nuisance particulates; 5 mg/m<sup>3</sup> as respirable fraction.

ACGIH Threshold Limit Values TLV : 10 mg/ m<sup>3</sup> as total nuisance particulates; 3 mg/m<sup>3</sup> as respirable fraction.

NIOSH : None

Carcinogen : No

### 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

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clothing. Use with adequate ventilation. Wash thoroughly after handling. Material is electrically conductive: electrical systems should be protected from exposure to airborne fibres.

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.
Medical conditions aggravated by exposure:	may aggravate an existing dermatitis or respiratory condition.
Potential environmental	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.
Skin contact:	Immediately wash with soap and water affected areas. See physician if irritation persists.
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

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.
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Special exposure hazards:	In case of fire, carbon monoxide (CO), carbon dioxide (CO <sub>2</sub> ), nitrogen oxides (NO <sub>x</sub> ), and smoke decomposition products may be released. Under certain combustion circumstances, traces of other poisonous products cannot be excluded.
Suitable extinguishing media:	Dry inert bulk material, e.g., sand or solid extinguishing-agent class D, chemical foam.
Unsuitable extinguishing media:	None.
Special protective equipment for fire-fighters:	full protective clothing for chemicals and self-contained breathing apparatus.

### 6 Accidental release measures

Personal precautions:	Avoid formation of dust clouds. Keep away from ignition sources. 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. No further special precautions required.

### 8 Exposure controls / personal protection

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 P2 is recommended.
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.

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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.

### 9 Physical and chemical properties

Form: Fine powder

Colour: Black

Odour: Odourless

Melting temperature: > 80 °C

Boiling temperature: Not applicable

Flash point: Not applicable

Ignition temperature: > 350 °C (DIN 51794 method)

Explosion limits: Dusts with air can create an explosive mixture.

Vapour pressure (20 °C): Not applicable

Bulk Density (20 °C): ~ 0,4 g/cm<sup>3</sup>

Solubility in water (20 °C): Insoluble

pH-value: Not applicable

### 10 Stability and reactivity data

Hazardous decomposition products: At high temperatures CO, CO<sub>2</sub>, smoke and NO<sub>x</sub> 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

Oral LD50: believed to be > 5 g/kg

Dermal LD50: believed to be > 2 g/kg

Inhalation LC50: believed to be slightly toxic

Irritation: Eye irritant

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Sensitization: not expected to be a sensitizer  
Subchronic/chronic toxicity data: no information  
Mutagenicity: no information  
Carcinogenicity: no information  
Reproductation toxicity: no information

### 12 Ecological information

The product is water-insoluble. Do not allow product to reach ground water, water basins or the sewage system. The local wastewater regulations are to be observed.

### 13 Disposal considerations

#### US EPA Waste Number & Descriptions

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.

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

RCRA Hazard Class (40 CFR 261)

Waste must be disposed of in accordance with federal, state and local environmental control regulations. Consult your local or regional authorities.

### 14 Transport information

Shipping name: Synthetic resin powders.

DOT Road Shipment Information (49 CFR 172.101)

Hazard Class: No hazardous according UN-regulations.

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

#### US Federal

TSCA: all materials are listed on the TSCA Inventory  
CERCLA: none  
SARA302 EHS: none listed

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SARA313 none  
SARA312 Hazard Class:  
Health: Acute-Yes Chronic-No  
Fire: Yes  
Sudden release of pressure: No

*State right-to-know Status*  
*None listed*

### European/International regulations

Danger Symbol: -

Risk Phrases : -

Safety Phrases: -

Labelling according to EU guidelines: the mixture is not subject to classification according to EU regulations. Observe the general safety regulation when handling chemicals.

### Further regulations:

Directives 2001/58/CE, 1999/45/CE, 2006/8/CE, 67/548/CEE and further amendments.

## 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.

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