



## SAFETY DATA SHEET

EC - Safety Data Sheet  
Reference: NDP MSDS\_01  
Version/Revision: Rev 1.1  
Printing date: September 2009  
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**SAFETY DATA SHEET FOR Nanodiamond Powder****1. Identification of the substance/preparation and of the company/undertaking:****Identification of the product:**

A diamond particle containing a primary diamond particle in size of 2 – 10nm, surrounded by a carbon based cover commonly referred to as a cluster or aggregated secondary particle.

**Use of the product:**

Nano-diamond is used in the medical, pharmacological, CMP polishing and coating/cladding industries.

**Company identification:**

Company: NanoDiamond Products Limited

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**2. Hazards Identification****3. Composition/Information on Ingredients**

The composition of nano-diamond will vary from product and grade. Please check that you are using the correctly specified material for the application.

The product contains the following ingredients as per 67/548/EEC and 99/45/EC

No	Name	EC Nr. (ELINCS/EINECS)	CAS N°	Concentration range	Classification
1	Diamond	231-953-2	7782-40-3	78 - 82%	Not hazardous according to Directive 67/548/EEC



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2	Carbene	2465-56-7	2465-56-7	0.36% - 0.8%	Not hazardous according to Directive 67/548/EEC
3	Phenolcarbinol	202-859-9	100-51-6	0.87% - 1.7%	R20/22,S2,S26 Annex1 Index# 027-001-00-9
4	Carboxylic Carbon	231-153-3	7440-44-0	2.0% - 2.2%	Not hazardous according to Directive 67/548/EEC
5	Ketones,C12 branched	271-043-2	68514-41-0	1.4% - 2.1%	Not hazardous according to Directive 67/548/EEC
6	Anthracene	204-371-1	120-581-5	1.5% - 1.7%	Not hazardous according to Directive 67/548/EEC
7	Phenanthrene	201-581-1	85-01-8	1.2% - 2.7%	Not hazardous according to Directive 67/548/EEC
8	Dechlorane Plus	236-948-9	13560-89-9	2.1% - 2.7%	Not hazardous according to Directive 67/548/EEC
9	Aniline	200-539-3	62-53-3	2.2% - 2.5%	R20/21/22,23/24/25,R40/41/43/48 Annex1 Index# 027-001-00-9
10	Methylpyridine	215-588-6	1333-41-1	2.2% - 2.5%	Not hazardous according to Directive 67/548/EEC
11	Amicarbazone	NA	129909-90-6	2.1% - 2.9%	Not hazardous according to Directive 67/548/EEC
12	Diethyl Ether	200-467-7	60-29-7	3.1% - 3.4%	R12/19/22/66/67, S2/9/16/29/33 Annex1 Index# 027-001-00-9

**4. First Aid Measures**

See also section 8 and 16

Inhalation: Not likely, due to the form of the product  
 Eye contact: Use eye wash for 15 minutes; if necessary consult a physician afterwards.  
 Skin contact: If exposed wash hands and exposed skin thoroughly with soap and water.  
 Ingestion: Not likely, due to the form of the product; should the situation arise, rinse out the mouth and drink plenty of water. In case of continuous disorders consult a physician  
 Note to physician: Not available.

**5. Fire Fighting Measures**

Flash Point N/A, LEL N/A, UEL N/A. Nano-diamond in not a fire hazard and under normal conditions is non-combustible. The dry form if allowed to accumulate may pose a fire hazard in allowed to accumulate in the presence of an ignition source. Use self contained respiratory protective equipment.  
 Extinguishing media: water, foam, sand, powder or CO<sub>2</sub> as appropriate for surrounding materials

**6. Accidental release measures**

Avoid dust formation. Ventilate area of leak or spill. Wear appropriate personal protective equipment. Isolate spill



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area. Keep unnecessary and unprotected personnel from entering. Wet dry powder and carefully scoop up material spillages and place in appropriate containers for disposal. If in water use appropriate media to absorb spill. Avoid dispersal or runoff to area's that are difficult to clean. Avoid generating dust during clean up of any dry powder.

**7. Handling and Storage**

Handling:

Avoid contact with eyes, skin and clothing. Nano-diamond used under normal operating conditions does not require special safety precautions other than the normal safety procedures for handling chemicals. During processing operations, generated dust may require special consideration. Wash hands after handling, before eating or smoking. Wash exposed skin. Smoking and consumption of food or drink should be restricted from areas where nano-diamond is being used. Maintain good housekeeping procedures to avoid dust accumulation during processing. Avoid dust inhalation and direct skin contact. Medical monitoring is recommended for individuals with particular attention to any potential sensitisation.

Storage:

Keep material in a tightly closed containers and store in a cool dry area. Keep away from sources of ignition.

**8. Exposure Controls / Personal Protection**

Before processing it is recommended to perform a risk assessment and to use personal protection equipment accordingly.

8.1. Occupational exposure limit values and/or biological limit values

Keep exposure of the following components under surveillance

No	Name	CAS Nr.	Specification	Concentration limits (daily average value)	Short term value	Remarks
1	Aniline	62-53-3	UK TLV	TWA:1.23mg/kg/, 8 hrs	NA	IRIS 02/01/1994
2	Diethyl Ether	60-29-7	EU OEL	TWA:616 mg/m <sup>3</sup> , 8 hrs	NA	

Note:

8.2. Exposure controls

8.2.1. Occupational exposure controls

Use only with adequate ventilation and or local exhaust ventilation.

8.2.1.1. Respiratory protection: Use respiratory protective equipment  
 (type depends on specific application and material being processes)

8.2.1.2. Hand protection: Wear protective gloves  
 (type depends on specific application and material being processes)

8.2.1.3. Eye protection: Wear protective goggles or face shield  
 (type depends on specific application and material being processes)

8.2.1.4. Hearing protection: not relevant

8.2.1.5. Body protection: Wear body protection to protect body from spillages during processing.



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**9. Physical and Chemical Properties**

- 9.1 Physical state: Solid.
- 9.2 Colour: Grey Powder. Liquid; Tan to Transparent.
- 9.3 Solubility in water: A portion of the nano-diamond cluster is dispersible in water into its individual components.

**10. Stability and Reactivity**

Nano-diamond is stable. Airborne fine powdered dust in confined spaces where heat and/or flame is present in excess of 400 deg. C can cause the powder to burn rapidly.

Reactivity

- 10.1 Conditions to avoid:  
No decomposition in normal use.
- 10.2 Materials to avoid:  
As per above detailed incompatible chemicals.
- 10.3 Hazardous decomposition products:  
No decomposition products known.

**11. Toxicological Information**

Acute Toxicity  
Diamond: No information available.

**12. Ecological Information**

- 12.1 Ecotoxicity:  
None known
- 12.2 Mobility: No potentials known.
- 12.3 Persistence and degradability: No biodegradable potentials known.
- 12.4 Bioaccumulative potential: No potentials known.
- 12.5 Other hazardous effects: No effects known.

**13. Disposal Considerations**

- 13.1. Product  
Follow national and regional regulations. Dispose of in a licensed facility and in accordance with appropriate government regulation.
- 13.2. Packing  
Follow national and regional regulations.

**14. Transport Information**

The product is not covered by international regulation on the transport of dangerous goods.

**15. Regulatory Information**

EU Regulations



Hazard Symbol:



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Aniline

Classification :  
Risk Phrases :  
+ R40 : Limited evidence of a carcinogenic effect.  
+ R43 : May cause sensitization by skin contact.  
Safety Phrases :  
+ S2 : Keep out of the reach of children.  
+ S22 : Do not breathe dust.  
+ S36 : Wear suitable protective clothing

Diethyl Ether

Risk Phrases :  
+ R42/43: May cause sensitization by inhalation and skin contact.  
Safety Phrases :  
+ S2: Keep out of the reach of children.  
+ S22: Do not breathe dust.  
+ S24: Avoid contact with skin.  
+ S37: Wear suitable gloves.  
+ S61: Avoid release to the environment. Refer to special instructions/Safety data sheets.

Phenolcarbinol

+R 20  
+R 23  
+S2 Keep out of reach of children  
+S26

**16. Other Information**

The above information is based on our current standard of knowledge and does not constitute any warranty of conditions of the product. The information does not form part of any contractual agreement. It remains the user's responsibility to adhere to existing laws and regulations.

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