

Nano4elec – Bio PE EC 12

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name: Nano4elec – Bio PE EC 12

The product is a mixture of polyethylene; carbon black.

MSDS number Bio PE EC 12-01

1.2 Relevant identified uses of the substance or mixture and uses advised against

Functional thermoplastic compound used for electrically conductive application.

1.3 Details of the supplier of the safety data sheet



Nano4

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1.4 Emergency telephone number

Emergency number in Europe: 112

Centre anti-poisons belge: + 32.(0)70/245.245

Centre anti-poisons français: ORFILA - Tel : + 33 (0)1 45 42 59 59

Centre Suisse d'information Toxicologique (CSIT) : 145 (appels depuis la Suisse) / + 41 44 251 51 51 (appels depuis l'étranger).

Section 2: Hazards identification

2.1 Classification of the substance or mixture

Not classified according to the regulation EC 1272/2008 (EC-GHS) and ATP.

Not classified according to EEC directives 67/548/EEC (dangerous substance) and 1999/45/EC (dangerous preparation).

Main hazards

None to our knowledge.



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Adverse human health effects

Inhalation	Fine dust may cause irritation of respiratory system and mucous. If heated, the product may form vapors or fumes which may cause irritation of respiratory tract and cause coughing and sensation of shortness of breath.
Skin contact	In contact with hot material, may cause severe thermal burns. May cause irritation.
Eye contact	Fine dust may cause irritation to ocular mucous.
Ingestion	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

2.2 Label elements

Not classified according to the regulation EC 1272/2008 (EC-GHS) and ATP.

Pictogram(s): warning: do not stack pallets.



2.3 Other hazards

Not a PBT or vPvB substance or mixture.

Section 3: Composition / information on ingredients

3.1 Composition

Chemical name	Wt%
Polyethylene	60-90%
Carbon Black	10-40%

Section 4: First-aid measures

4.1 Description of first-aid measures

Route of exposure

Inhalation	Exposure to spray, fumes and vapors produced by heated or burned product: bring patient into fresh air; seek medical advice.
Skin contact	Exposure to splashing of hot product: treat the affected part with cold water (by spraying or immersion). No attempt should be made to detach molten product adhering to the skin or to remove clothing attached with molten material, the injured body part would risk being

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pulled out; usually the layer detaches itself after a few days.
In case of severe burns, seek hospital treatment.
Wash area with soap and water. Get medical attention if irritation develops or persists.

Eye contact Exposure to splashing of hot product: treat the eyes with cold water. Seek specialist advice at hospital.
Fine dust may cause irritation to ocular mucous. In case of irritation caused by fine dust: wash with copious volumes of water, until the irritation disappears. Remove any lenses and open eyelids wide apart.

Ingestion Ingestion during handling is not likely.
Drink water by precaution.
Remove material from mouth and rinse mouth.
Do not induce vomiting. Never give liquid to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

Dust may irritate the respiratory tract, skin and eyes.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

Section 5: Firefighting measures

Flammability: auto ignition temperature: 350°C (Polyethylene)

Technical measures Stop the fire spreading.
Call the fire brigade immediately.
Evacuate non-essential personnel.
Protective clothing, goggles and self-contained breathing equipment should be made available for fireman.

5.1 Extinguishing media

Suitable extinguishing media For minor fires: carbon dioxide (CO₂) or powder, water.
For more extensive fires: (alcohol resistant) foam, General-purpose synthetic foams (including AFFF) or protein foams may function, but much less effectively, water spray (mist) to cool the surfaces exposed to the fire.

Unsuitable extinguishing media Do not use water jets (stick jets) for extinguishing fire since they could help to spread the flames.

5.2 Special hazards arising from the substance or mixture

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Complete combustion, with an excess of oxygen forms: carbon dioxide (CO₂) and water vapor.

Partial combustion forms also: carbon monoxide (CO) soot and cracked products: aldehydes, ketones, acetone, acetaldehyde, formaldehyde, nitrous gas (NO_x), phosphorous oxide cyanohydric acid (HCN).

5.3 Advice for firefighters

Special protective equipment for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire. MSHA/NIOSH (approved or equivalent) and full protective gear.

Special firefighting procedures

Move containers from area if you can do so without risk. Cool containers exposed to flames with water until well after the fire is out. Prevent runoff from fire control or dilution from entering streams, sewers or drinking water supply.

Other information

Fine dust dispersed in air may ignite. Risks of ignition followed by flame propagation or secondary explosions shall be prevented by avoiding accumulation of dust, e.g. on floors and ledges.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Wear a suitable anti-dust respirator.

Where exposure is likely, protective clothing must be worn including gloves.

Avoid inhalation of dust and contact with skin and eyes. Goggles/spectacles.

For emergency responders

Wear suitable breathing equipment, in case of risk of exposure to vapor or fumes.

6.2 Environmental precautions

Prevent further leakage or spillage.

Avoid discharge into drains, water courses or onto the ground or into environment in general.

6.3 Methods and material for containment and cleaning up

On soil

Granules spilled on the floor can cause a risk of slipping on smooth surfaces.

Recover the spilled product by sweeping or suction; put it in containers to facilitate its disposal.

Dispose safely in accordance with local or national regulations.

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On water Prevent the piled material from spreading.
If the material has been discharged into a stream or a sewerage system, inform the authorities of the possible presence of floating materials.
Clean up the water surface by creaming of debris from the top.
Refer to a specialist for waste disposal in a safe manner in accordance with local or national regulations.

6.4 reference to other sections

For personal protection, see section 8. For waste disposal, see section 13.

Section 7: Handling and storage

7.1 Precautions for safe handling

All pneumatic transport equipment must be electrically earthed.
Avoid heat, sparks, open flames and other ignition sources.
Observe good industrial hygiene practices.
Wash the hands carefully after working with this product.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions Store at room temperature and at atmospheric pressure in original packaging (plastic or cardboard boxes).
Do not store near highly flammable materials or alkaline material.
Store away from heating source. Avoid static electricity build up with connection to earth.
Store in dry, well-ventilated area.
Prolonged storage preferably out of the sun or other sources of radiation.

Storage of pallets The pallet must never be placed either on top of or below another pallet. (The term pallet includes both the pallet and its load).
When pallets are stored in racks, it should be checked whether the pallet is fit for stacking in the concerned racks.

Container suitable Polyethylene, paper bags.

incompatibilities Avoid contact with water.

7.3. Specific use(s)

Recommended to professional users.

Section 8: Exposure controls/ personal protection

8.1 Control parameters

Refer to any national measure that may be relevant.

Occupational exposure limit Inhalable dust particles (carbon black):

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UK: HSE EH40/2005: workplace exposure limit TWA: 3,5 mg/m³
 UK: HSE EH40/2005: workplace exposure limit STEL: 7 mg/m³ (total inhalable dust)
 Inhalable amorphous silice (contained in additives) :
 BE: workplace exposition limit TWA : 2 mg/m³
 Titanium dioxide (contained in additives) :
 BE: workplace exposition limit TWA : 10 mg/m³

Biological limit values No biological exposure limits noted for the ingredient(s).

Recommended monitoring procedures Follow standard monitoring procedures.

Derived no-effect level (DNEL) (Carbon black) type: workers; route: inhalation; value: 2 mg/m³; form: long term exposure local and systemic effects.

Predicted no effect concentrations (PNECs) (carbon black) type: Aqua (fresh water); value: 5 mg (carbon black) type: Aqua (marine water); value: 5 mg

8.2 Exposure controls

Appropriate engineering controls Ventilate as needed to control airborne dust, vapors or fumes. Use explosion-proof ventilation equipment if airborne dust levels are high.

Individual protection measures, such as personal protective equipment

- General information Personal protective equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.
- Eye/face protection Use tight fitting goggles if dust is generated.
- Hand protection Suitable gloves can be recommended by the glove supplier. Use protective gloves made of: chromate-free leather.
- Other Wear appropriate clothing to prevent repeated or prolonged skin contact. Wear safety non-slip shoes in areas where spills or leak can occur.
- Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment with particle filter, type P1.
- Thermal hazards None known.

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- Hygiene measures Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.
- Environmental exposure controls Handle in accordance with good industrial hygiene and safety procedures

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

appearance	Pellets from a diameter of 2 to 4 mm
Physical state at 20°C	Solid
Colour	black, opaque
Odour	odourless
Change in physical state at 1013 hPa	Not determined
Melting point (°C)	Not determined
Decomposition point	Not determined
Auto-ignition temperature (°C)	350°C (neat polymer)
Flash ignition temperature (°C)	335°C (neat polymer)
Vapour pressure at 20°C (hPa)	Not determined
Density, mass at 20°C (kg/m ³)	Not determined
Solubility in water at 20°C (mg/l)	Soluble (additive)
pH value (concentrated product)	Not applicable.
Viscosity (mm ² /s)	Not applicable.

9.2 Other information

No information available.

Section 10: Stability and reactivity

10.1 Reactivity

The product is combustible if heated above the flash point.

The product is stable and non-reactive under normal conditions of use, storage and transport.

10.2 Chemical stability

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The material is stable under normal operating conditions of storage, handling and use.

10.3 Possibility of hazardous reactions

Dust may form an explosive mixture with air.

When heated, release of ammoniac gas or alkaline soap.

10.4 Conditions to avoid

Avoid proximity or contact with flames or sparks.

It is recommended not to heat at a temperature higher than 230°C.

10.5 Incompatible materials

Avoid contact with strong base; oxidizing agent.

10.6 Hazardous decomposition products

Complete combustion, with an excess of oxygen forms: carbon dioxide (CO₂) and water vapor.

Partial combustion forms also: carbon monoxide (CO), soot and cracked products: aldehydes, ketones, sulphur oxide.

Advice to prevent explosion: avoid dust accumulation by use of filters in the pneumatic transport equipment.

Thoroughly ventilate the working place.

All conductive materials must be electrically earthed.

In case of pneumatic alimentation, feed the extruders by aspiration; use preferably nitrogen as carrier gas.

Section 11: Toxicological information

11.1 Information on toxicological effects

<i>Acute toxicity</i>	There were no target organ effects noted following ingestion or dermal exposure in animal studies.
Ingestion	Information about carbon black (additive) : oral LD50 (rat): >8000 mg/kg Information about HDPE (resin) : oral LD50 (rat): >4000 mg/kg
Skin contact	Information about carbon black (additive) : Dermal LD50 (rabbit): >3000 mg/kg
<i>Local effect</i>	
Inhalation	Dust may cause irritation of respiratory system. If heated, the product may form vapors or fumes which may cause irritation of respiratory tract and cause coughing and sensation of shortness of breath.
Skin contact	May cause skin irritation. In contact with hot material, may cause severe thermal burns.

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	Thermal decomposition products are produced at elevated temperatures and these may be irritating.
Eye contact	May cause eye irritation. Fine dust may cause irritation to ocular mucous. Splashing of molten droplets causes ocular tissue burns. Thermal decomposition products are produced at elevated temperatures and these may be irritating.
<i>Specific effects</i>	May cause skin irritation and/or dermatitis. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough. Burning produces irritant fumes.

Section 12: Ecological information

Avoid losses to the environment whenever possible.

12.1 Toxicity

Because of its structure, the product should not be dangerous for aquatic life. Information are available about toxicity of carbon black. Due to the structure of carbon black, carbon black particles are not in direct contact with environment.

12.2 Persistence and degradability

The product is not biodegradable.

12.3 Bio accumulative potential

No data available.

12.4 Mobility

No information available.

12.5 Results of PBT and vPvB assessment

Not available.

12.6 Other adverse effects

The product is not toxic, small particles can have physical effects on water and soil organisms.

Section 13: disposal considerations

13.1 Waste treatment methods

Residual waste	Dispose in accordance with local regulations. Do not contaminate ponds, waterways or ditches with chemical
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	or used container.
Contaminated packaging	Empty remaining contents. Do not re-use empty containers. Empty containers should be transported/delivered using a registered waste carrier to local recyclers for disposal.
EU waste code	Waste codes should be assigned by the use based on the application for which the product was used.
Disposal methods/information	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 14: Transport information

Road (ADR)/rail (RID)	Not restricted for transport
Inland waterways (ADN)	Not restricted for transport
Marine (IMO)	Not restricted for transport
Air transport (ICAO/IATA)	Not restricted for transport
IMDG	Not restricted for transport

Section 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations : not listed

15.2 Chemical safety assessment

The substance must be handled in accordance with good industrial hygiene and safety procedures.

Section 16: Other information

Training advice: the use of this product requires specific training. The user must receive all product information in order to handle the product safely. (Personal equipment and best practice standards).

Disclaimer: the information in the sheet was written based on the best knowledge and experience currently available.