1. Product and company identification

Product identifier

Trade name: Novodur® ABS Granulat
This safety data sheet pertains to the following products:
Novodur® H604
Novodur® HD-15
Novodur® HD M203FC
Novodur® HD 877M
Novodur® M203
Novodur® MH-102
Novodur® P2H-AT
Novodur® P2MC
Novodur® TN100306

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

General use: For the production of moulded plastic articles or as intermediate for the production of plastic
Reserved for industrial and professional use.

Details of the supplier of the safety data sheet

Company name: INEOS Styrolution America LLC
Street/POB-No.: 4245 Meridian Parkway, Suite 151
Postal Code, city: Aurora IL 60504
USA
WWW: www.styrolution.com
E-mail: infopoint.americas@styrolution.com
Telephone: +1 866 - 890 - 6353
Telefax: +1 866 - 890 - 6362
Dept. responsible for information:
Infopoint, Telephone: +1 (0) 815 - 423 - 1235
E-mail: infopoint.americas@styrolution.com

Emergency phone number

CHEMTREC
Telephone: 1 - 800 - 424 - 9300 (24 h)
(collect calls accepted)

2. Hazards identification

Emergency overview

Appearance: Form: solid, granulate
Color: varying, depends on colouring
Odor: characteristic

Classification: This substance is classified as not hazardous.

Regulatory status

This material is not considered hazardous by the U.S. OSHA Hazard Communication Standard (29 CFR 1910.1200) and SIMDUT in Canada.

Hazards not otherwise classified

Dust: Can cause skin, eye and respiratory tract irritation.
In case of dust formation (Fine dust): May form explosible dust-air mixture if dispersed.
The melted product can cause severe burns.
Swallowing may cause gastrointestinal irritation and pain of guts.
see section 11: Toxicological information

3. Composition / Information on ingredients

Chemical characterization: (C8H8*C4H6*(C3H3)n)m Acrylonitrile-butadiene-styrene copolymer
2-Propenenitrile, polymer with 1,3-Butadiene and Ethylbenzene

CAS-Number: 9003-56-9

Additional information: Preparation does not contain dangerous substances above limits that need to be mentioned in this section according to applicable legislation.

4. First aid measures

General information: Immediately remove any contaminated clothing, shoes or stockings.

In case of inhalation: In case of inhalation of decomposition products, affected person should be moved into fresh air and kept still. If breathing has stopped, give artificial respiration immediately. Seek medical attention.

Following skin contact: The melted product can cause severe burns.
Do not remove the product from the skin without medical assistance.
After contact with molten product, cool skin area rapidly with cold water. Cover with sterile dressing material to protect against infection. Consult physician.

After eye contact: Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing.
In case of troubles or persistent symptoms, consult an opthalmologist.

After swallowing: Rinse mouth with water. Drink one or two glasses of water.
Never give an unconscious person anything through the mouth. Seek medical attention.

Most important symptoms/effects, acute and delayed

Dust: Skin irritation, eye irritations and redness

Information to physician

Treat symptomatically.
Decontamination, vital functions

5. Fire fighting measures

Flash point/flash point range:
No data available

Auto-ignition temperature: not self-igniting

Suitable extinguishing media:
Water fog, foam, dry chemical powder, carbon dioxide (CO2).

Extinguishing media which must not be used for safety reasons:
Full water jet

Specific hazards arising from the chemical

In case of fire may be liberated: Smoke, carbon monoxide and carbon dioxide (CO2).
Possible in traces: Acrylonitrile, butadiene, styrene, hydrocarbons, aldehydes, acids, hydrogen cyanide.
In case of dust formation (Fine dust): May form explosible dust-air mixture if dispersed.

Protective equipment and precautions for firefighters:

Wear a self-contained breathing apparatus and chemical protective clothing.

Additional information: Seal off endangered area. Remove persons to safety. Do not allow fire water to penetrate into surface or ground water. Fire residuals and contaminated extinguishing water must be disposed of in accordance with the regulations of the local authorities.

6. Accidental release measures

Personal precautions: Keep the molten mass away from the eyes and the skin.
Where there is a risk of exothermal decomposition as a result of overheating (rise in temperature, formation of fumes or smoke) cool the melt in a water bath.
Provide adequate ventilation.
Wear personal protection equipment. Do not breathe dust.

Environmental precautions:

Do not allow to penetrate into soil, waterbodies or drains.

Methods for clean-up: Take up mechanically. Collect in closed containers for disposal.
Avoid generation of dust. Remove all sources of ignition. Provide adequate ventilation.

Additional information: Special danger of slipping by leaking/spilling product.

7. Handling and storage

Handling

Advices on safe handling: For mechanical processing: Provide adequate ventilation, and local exhaust as needed.
Do not breathe dust.
In the case of the formation of dust: Withdraw by suction.

In case of melting: To avoid thermal decomposition, do not overheat.
Make sure there is sufficient air exchange and / or that working rooms are air suctioned.
Avoid exceeding WEL threshold levels. Do not breathe vapors.
Molten material: Avoid contact with the substance.
After work, wash hands and face.

Precautions against fire and explosion:

Take precautionary measures against static discharges. Keep away from sources of ignition. Use grounding equipment. Use explosion-proof equipment and non-sparking tools/utensils. Avoid open flames.
In case of dust formation (fine dust): May form explosible dust-air mixture if dispersed.

Storage

Requirements for storerooms and containers:

Store in a well-ventilated place. Keep container tightly closed. Store only in original container.
Protect against heat /sun rays.
Protect from moisture contamination.

Further details: Special danger of slipping by leaking/spilling product.

8. Exposure controls / personal protection

Exposure guidelines

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
9003-56-9	Novodur® ABS Granulat	USA: ACGIH: TWA USA: ACGIH: TWA USA: OSHA: TWA USA: OSHA: TWA	10 mg/m³ 3 mg/m³ 15 mg/m³ 5 mg/m³
100-41-4	Ethylbenzene	USA: ACGIH: TWA USA: NIOSH: STEL USA: NIOSH: TWA USA: OSHA: TWA	87 mg/m³; 20 ppm 545 mg/m³; 125 ppm 435 mg/m³; 100 ppm 435 mg/m³; 100 ppm
100-42-5	Styrene	OSHA: Ceiling USA: ACGIH: STEL USA: ACGIH: TWA USA: NIOSH: STEL USA: NIOSH: TWA USA: OSHA: TWA	200 ppm 170 mg/m³; 40 ppm 85 mg/m³; 20 ppm 425 mg/m³; 100 ppm 215 mg/m³; 50 ppm 100 ppm
107-13-1	Acrylonitrile	NIOSH: Ceiling OSHA: Ceiling USA: NIOSH: TWA USA: OSHA: TWA	10 ppm 10 ppm 1 ppm 2 ppm
106-99-0	1,3-Butadiene	USA: ACGIH: TWA USA: OSHA: STEL USA: OSHA: TWA	4.4 mg/m³; 2 ppm 11 mg/m³; 5 ppm 2.21 mg/m³; 1 ppm
100-40-3	4-Vinylcyclohexene	USA: ACGIH: TWA	0.44 mg/m³; 0.1 ppm

Biological limit values:

CAS No.	Designation	Type	Limit value	Parameter	Sampling
100-41-4	Ethylbenzene	USA: ACGIH-BEI, urine	0.15 g/g creatinine	Sum of mandelic acid and phenylglyoxylic acid in urine	end of shift at end of workweek
100-42-5	Styrene	USA: ACGIH-BEI, urine	40 µg/l	Styrene in urine	end of exposure or end of shift
		USA: ACGIH-BEI, urine	400 mg/g creatinine	Mandelic acid + Phenylglyoxylic acid	end of exposure or end of shift
106-99-0	1,3-Butadiene	USA: ACGIH-BEI, blood	2.5 pmol/g Hb	Mixture of N-1 and N2-(hydroxybutenyl)valine hemoglobin (Hb) adducts	No restriction
		USA: ACGIH-BEI, urine	2.5 mg/L	1,2 Dihydroxy-4-(N-acetylcysteinyl)-butane	end of exposure or end of shift

Additional information: The product contains very low levels of residual monomers and process chemicals (mainly styrene, ethylbenzene and very low levels of acrylonitrile, vinylcyclohexene, butadiene) that may be evolved during thermal processing, along with possible decomposition products. As the identity and levels of these impurities evolved will depend upon the processing conditions (temperature etc.) it is the responsibility of the user to determine the adequacy of any protection or safety measures.

Engineering controls

Provide good ventilation in the work area. Additional controls are not normally necessary when handling the polymer.

Thermal extrusion: Provide local exhaust ventilation to ensure that the workplace exposure limit is not exceeded.
Use of respiratory protection may be necessary during maintenance activities.
See also information in chapter 7, section storage.

Personal protection equipment (PPE)

Eye/face protection: Tightly sealed goggles according to OSHA Standard - 29 CFR: 1910.133 or ANSI Z87.1-2010.

Skin protection: Wear suitable protective clothing. Boots or safety shoes.
In case of dust formation: Overall

Protective gloves according to OSHA Standard - 29 CFR: 1910.138.
Glove material: Nitrile rubber - Layer thickness. 0.11 mm.
Breakthrough time: >480 min.
Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

In case of melting: Impervious heat protective gloves according to OSHA Standard - 29 CFR: 1910.138.
Glove material: Leather
Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Respiratory protection: Respiratory protection must be worn whenever the TLV (WEL) levels have been exceeded. The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used.

General hygiene considerations:

Molten material: Avoid contact with skin.
Avoid breathing dust and vapours. Keep away from sources of ignition.
Wash hands before breaks and after work.

In case of dust formation: Particular danger of slipping on spilled product on the ground.

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance:	Form: solid, granulate Color: varying, depends on colouring
Odor:	characteristic
Odor threshold:	No data available
pH value:	No data available
Melting point/freezing point:	(Softening temperature): 203 - 221 °F
Initial boiling point and boiling range:	No data available
Flash point/flash point range:	No data available
Evaporation rate:	No data available
Flammability:	Not highly flammable.
Explosion limits:	No data available
Vapor pressure:	No data available
Vapor density:	No data available
Density:	at 68 °F: 1 - 1.1 g/cm³

Water solubility:	insoluble
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	not self-igniting
Thermal decomposition:	approx. > 572 °F
Explosive properties:	In case of dust formation (Fine dust): May form explosible dust-air mixture if dispersed.
Ignition temperature:	> 572 °F
Bulk density:	500 - 700 kg/m³

10. Stability and reactivity

Reactivity: exothermic reactions

Chemical stability: Stable under recommended storage conditions.

Possibility of hazardous reactions
In case of dust formation (Fine dust): May form explosible dust-air mixture if dispersed.

Conditions to avoid: Keep away from sources of ignition and heat. Keep away from open flames, hot surfaces and sources of ignition.
Avoid dust formation. Protect from moisture contamination.

Incompatible materials: Strong oxidizing agents, strong acids

Hazardous decomposition products:
In case of fire may be liberated: Smoke, carbon monoxide and carbon dioxide (CO2).
Possible in traces: Acrylonitrile, butadiene, styrene, hydrocarbons, aldehydes, acids, hydrogen cyanide.

Thermal decomposition: approx. > 572 °F

11. Toxicological information

Toxicological tests

Toxicological effects: The statements are derived from the properties of the single components. No toxicological data is available for the product as such.
Acute toxicity (oral): Lack of data. No evidence of acute toxicity.

Acute toxicity (dermal): Lack of data. No evidence of acute toxicity.

Acute toxicity (inhalative): Lack of data. No evidence of acute toxicity.

Skin corrosion/irritation: Lack of data.
Dust: Can cause skin, eye and respiratory tract irritation.
Processing, thermal hazards: Vapors: Can cause skin, eye and respiratory tract irritation.

Eye damage/irritation: Lack of data.
Dust: Can cause skin, eye and respiratory tract irritation.
Processing, thermal hazards: Vapors: Can cause skin, eye and respiratory tract irritation.

Sensitisation to the respiratory tract: Based on available data, the classification criteria are not met. The chemical structure of the polymer does not suggest a specific alert for such an effect.

Skin sensitisation: Based on available data, the classification criteria are not met. The chemical structure of the polymer does not suggest a specific alert for such an effect.

Germ cell mutagenicity/Genotoxicity: Based on available data, the classification criteria are not met. The chemical structure of the polymer does not suggest a specific alert for such an effect.

Carcinogenicity: Based on available data, the classification criteria are not met. No indications of human carcinogenicity exist.

Reproductive toxicity: Based on available data, the classification criteria are not met. The chemical structure of the polymer does not suggest a specific alert for such an effect.

Effects on or via lactation: Lack of data.

Specific target organ toxicity (single exposure): Lack of data.
Dust: Can cause skin, eye and respiratory tract irritation.
Processing, thermal hazards: Vapors: Can cause skin, eye and respiratory tract irritation.

Specific target organ toxicity (repeated exposure): Lack of data. Chronic toxic effects are not expected. The product has not been tested. The statement is derived from products of similar structure or composition.

Aspiration hazard: Lack of data.

Other information: When handled appropiately, even after long years of experience with this product, no adverse health effects are known.

Symptoms

Dust: Can cause skin, eye and respiratory tract irritation.
The melted product can cause severe burns.
Thermal treatment, Processing: Irritating to eyes, respiratory system and skin.
In case of ingestion: Swallowing may cause gastrointestinal irritation and pain of guts.

12. Ecological information

Ecotoxicity

Aquatic toxicity: no evidence of aquatic toxicity

Effects in sewage plants: In sewage treatment plants it may be separated mechanically.

Further details: Pellets may accumulate in the digestive systems of birds and aquatic life, causing injury and possible death due to starvation.

Mobility in soil

No data available

Persistence and degradability

Further details: Biodegradation: Product is not readily biodegradable.
The product is likely to persist in the environment.

Additional ecological information

General information: Do not allow to enter into ground-water, surface water or drains.

13. Disposal considerations

Product

Recommendation: Recycling or special waste incineration.
After appropriate treatment the product can be remelted and reprocessed into new moulded articles. Mechanical recycling is only possible if the material has been selectively retrieved and carefully segregated according to type.

Contaminated packaging

Recommendation: Dispose of waste according to applicable legislation.
Non-contaminated packages may be recycled.

14. Transport information

USA: Department of Transportation (DOT)

Proper shipping name: Not restricted

Sea transport (IMDG)

Proper shipping name: Not restricted
Marine pollutant: no

Air transport (IATA)

Proper shipping name: Not restricted

Further information

No dangerous good in sense of these transport regulations.

15. Regulatory information

National regulations - U.S. Federal Regulations

Product:
TSCA Inventory: listed; EPA flags XU
TSCA HPVC: not listed

Ethylbenzene:
TSCA Inventory: listed; EPA flags T
TSCA HPVC: not listed
Carcinogen Status:
IARC Rating: Group 2B
OSHA Carcinogen: not listed
NTP Rating: not listed
Clean Air Act:
Hazardous Air Pollutants: Code XOV
SOCMI Chemical: yes
Clean Water Act:
Hazardous Substances: RQ 1000 lbs.
Priority Pollutant: yes
Other Environmental Laws:
CERCLA: RQ 1000 lbs.
RCRA Groundwater Monitoring: Methods 8020, 8240 / PQL 2, 5
SARA Title III Section 313, Toxic Release: Conc. 1.0% / Threshold Standard
NIOSH Recommendations:
Occupational Health Guideline: 0264*

Styrene:
TSCA Inventory: listed
TSCA HPVC: not listed
Carcinogen Status:
IARC Rating: Group 2B
OSHA Carcinogen: not listed
NTP Rating: listed
Clean Air Act:
Hazardous Air Pollutants: Code XOV
SOCMI Chemical: yes
Clean Water Act:
Hazardous Substances: RQ 1000 lbs.
Other Environmental Laws:
CERCLA: RQ 1000 lbs.
RCRA Groundwater Monitoring: Methods 8020, 8240 / PQL 1, 5
SARA Title III Section 313, Toxic Release: Conc. 0.1% / Threshold Standard
NIOSH Recommendations:
Occupational Health Guideline: 0571

Acrylonitrile:	TSCA Inventory: listed; EPA flags T TSCA HPVC: not listed Carcinogen Status: IARC Rating: Group 2B OSHA Carcinogen: listed NTP Rating: listed Clean Air Act: Accidental Release Prevention: Threshold 20000 lbs. / Basis for listing = b Hazardous Air Pollutants: Code XOV SOCMI Chemical: yes Clean Water Act: Hazardous Substances: RQ 100 lbs. Priority Pollutant: yes Other Environmental Laws: CERCLA: RQ 100 lbs. RCRA Hazardous Wastes: Code U009 RCRA Groundwater Monitoring: Methods 8030, 8240 / PQL 5, 5 SARA Title III Section 302, EHS: TPQ 10000 lbs. / RQ 100 lbs. SARA Title III Section 313, Toxic Release: Conc. 0.1% / Threshold Standard NIOSH Recommendations: Occupational Health Guideline: 0014
1,3-Butadiene:	TSCA Inventory: listed TSCA HPVC: not listed Carcinogen Status: IARC Rating: Group 1 OSHA Carcinogen: listed NTP Rating: listed Clean Air Act: Accidental Release Prevention: Threshold 10000 lbs. / Basis for listing = f Hazardous Air Pollutants: Code XOV SOCMI Chemical: yes Other Environmental Laws: CERCLA: RQ 10 lbs. SARA Title III Section 313, Toxic Release: Conc. 0.1% / Threshold Standard NIOSH Recommendations: Occupational Health Guideline: 0067
4-Vinylcyclohexene:	TSCA Inventory: listed TSCA HPVC: not listed Carcinogen Status: IARC Rating: Group 2B OSHA Carcinogen: not listed NTP Rating: not listed Clean Air Act: SOCMI Chemical: yes

National regulations - U.S. State Regulations

California Proposition 65:
THIS PRODUCT(S) CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

National regulations - Canada

DSL: listed

National regulations - Great Britain

Hazchem-Code: -

16. Other information

Hazard rating systems:

NFPA Hazard Rating:
Health: 1 (Slight)
Fire: 1 (Slight)
Reactivity: 0 (Minimal)

HMIS Version III Rating:
Health: 1 (Slight)
Flammability: 1 (Slight)
Physical Hazard: 0 (Minimal)
Personal Protection: X = Consult your supervisor

HEALTH	1
FLAMMABILITY	1
PHYSICAL HAZARD	0
	X

Reason of change: Changes in section 1: Changes of product list: EMEA
Date of first version: 2/4/2013

Department issuing data sheet

Contact person: see section 1: Dept. responsible for information

The information in this data sheet has been established to our best knowledge and was up-to-date at time of revision. It does not represent a guarantee for the properties of the product described in terms of the legal warranty regulations.