SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 and 453/2010 (REACH)

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Trademark:	NORYL™
Product Code:	640 - 111
Product Description:	Polyphenylene ether [CASRN 25134-01-4]
Product Type:	Commercial Product
Recommended use:	May be used to produce molded or extruded articles or as a component of other industrial products.
Company:	SABIC Innovative Plastics B.V. Plasticslaan 1 P.O. Box 117 4600 AC Bergen op Zoom The Netherlands
Manufacturer:	SABIC Innovative Plastics US LLC 1 Noryl Avenue Selkirk, New York 12158 United States
Emergency Telephone Number:	Bergen op Zoom +31(0)164-292911 (24/24)
Emergency Transportation/CHEMTREC (24 HOUR):	800 424-9300 (USA) +1 703-527-3887 (globally, outside USA)
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Website Address:	**www.sabic-ip.com**

2. HAZARDS IDENTIFICATION

The additives in this product (if any) are bound in a thermoplastic resin matrix. In accordance with GHS for the classification of the product, the hazard potential may be assessed with respect to the physico-chemical form and/or bioavailability of the individual components in the thermoplastic resin.

Where GHS classifications are shown below, these are based on the individual components in the thermoplastic resin matrix. Under the typical use conditions for the resin, these hazardous components are unlikely to contribute to workplace exposure. Please read the entire safety data sheet and/or consult an EHS professional for a complete understanding.

Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Not hazardous Not classified

Classification according to EU Directives 67/548/EEC or 1999/45/EC

CLP/GHS-Labeling

GHS Labeling not required

Precautionary Statements

No GHS specific Precautionary Statements required - observe all other warnings and handling instructions in this SDS.

Other hazards which do not result in classification:

SABIC Emergency Overview

• Pellets with slight or no odor
• Spilled material may create slipping hazard
• Can burn in a fire creating dense, toxic smoke
• Molten plastic can cause severe thermal burns
• Fumes produced during melt processing may cause eye, skin, and respiratory tract irritation. Severe over-exposure may result in nausea, headache, chills, and fever. See below for additional effects.
• Secondary operations, such as grinding, sanding, or sawing can produce dust which may present an explosion or respiratory hazard.

Other Information: Cool skin rapidly with cold water after contact with molten material. Heating can release hazardous gases. Hazardous fumes can also occur in post-processing operations.

Processing Issues: Processing vapors may cause irritation to the eyes, skin, and respiratory tract. In cases of severe exposure, nausea and headache can also occur. Grease-like processing vapor condensates on ventilation ductwork, molds, and other surfaces can cause irritation and injury to skin.

Aggravated Medical Conditions: MEDICAL RESTRICTIONS: There are no known health effects aggravated by exposure to this product. However, certain sensitive individuals and individuals with respiratory impairments may be affected by exposure to components in the processing vapors.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Product Type Mixture

HAZARDOUS COMPONENTS:

Chemical Name	CAS Number	Weight %	Classification (67/548/EEC):	GHS Classification (EC) No. 1272/2008 [CLP]:
Toluene	108-88-3	0.1-0.3	F;R11 R67 Repro cat 3;R63 Xi;R38 Xn;R48/20-65	Flam. Liq. 2 (H225) Repr. 2 (H361) Asp. Tox. 1 (H304) STOT RE 2 (H373) Skin Irrit. 2 (H315) STOT SE 3 (H336)

For the full text of the H-statements, if mentioned in this section, see Section 16.

The non-hazardous components and exact percentage (concentration) of the composition have been withheld as a trade secret.

This product consists primarily of high molecular weight polymers which are not expected to be hazardous. The ingredients in this product are present within the polymer matrix and are not expected to be hazardous.

4. FIRST AID MEASURES

If Inhalation: Move to fresh air in case of accidental inhalation of fumes from overheating or combustion. If symptoms persist, call a physician.

On skin contact: Wash off immediately with soap and plenty of water. Immediately cool the skin by rinsing with cold water after contact with hot material. Consult a physician.

On contact with eyes: Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. If eye irritation persists, consult a specialist.

On ingestion: No hazards which require special first aid measures. Not probable due to nature of the product. If a large amount of pellet material is swallowed, consult a physician for medical treatment.

Precautions: Cool molten product on skin with plenty of water. Do not remove solidified product. Do not peel polymer from the skin. Processing vapors inhalation may be irritating to the respiratory tract. If symptoms are experienced remove victim from the source of contamination or move victim to fresh air and obtain medical advice.

Notes to Physician: Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Autoignition Temperature: 490 °C (914°F) estimated

Explosive Limits

upper: Not determined
lower: Not determined

Explosive Properties: Material is not sensitive to mechanical impact, but is sensitive to static discharge under dust cloud conditions Values below may vary by particle size distribution, morphology and grade. Using standard ASTM test methods, polyphenylene ether powder has the following properties:
Minimum Ignition Energy (MIE): 1.6 MJ (millijoules),
Deflagration Index, Kst: 225 (bar-m/sec) [classified ST-2 dust],
Volume Resistivity average: 2 x 10E14 (ohm-cm),
Maximum Pressure Output, Pmax: 6.4 (bar),
Maximum Pressure Rise Rate, dP/dt: not measured,
Minimum Oxygen Concentration: 12 (% O2)

Suitable Extinguishing Media: Use dry chemical, CO2, water spray or "alcohol" foam. Water is the best extinguishing medium. Carbon dioxide and dry chemical are not generally recommended because their lack of cooling capacity may permit re-ignition on larger resin fires (blobs, drools, etc.)

Unsuitable Extinguishing Media for Safety Reasons: Do not use a solid water stream as it may scatter and spread fire

Hazardous Decomposition Products: Fire will produce dense black smoke containing hazardous combustion products, carbon oxides, hydrocarbons fragments.

Hazards from Combustion Products: Fire will produce dense black smoke containing hazardous combustion products, carbon oxides, hydrocarbon fragments.

Specific Hazards: Take precautionary measures against static discharges. During processing, dust may form explosive mixture in air. Thermal decomposition can lead to release of irritating gases and vapors.

Special Protective Equipment for Firefighters: In the event of fire, wear self-contained breathing apparatus (EU: NEN-EN137)

6. ACCIDENTAL RELEASE MEASURES

Clean up: Sweep up and shovel into suitable containers for disposal. Do not create a powder cloud by using a brush or compressed air.

Personal Precautions: See section 8.

Environmental Precautions: Do not flush into surface water or sanitary sewer system. Material should not be released into the environment.

7. HANDLING AND STORAGE

Handling: Handle in accordance with good industrial hygiene and safety practices. Provide for appropriate exhaust ventilation and dust collection at machinery. Avoid dust formation. All metal parts of the mixing and processing equipment must be earthed.

Storage: Store in closed container in a dry and cool area. Keep away from heat sources and sources of ignition.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits: No components with information, unless noted below

Chemical Name	**Toluene** **108-88-3**
EU STEL	384 MGM3 100 ppm
Germany (DFG) - MAK	ARBEIT: 190 mg/m³ , 50 ml/m³ (ppm) ; SPITZ: 4(II) ; BEM: DFG , p_H , p_Y
France - Valeurs Limites d'exposition (VLE)	550 MGM3 150 ppm
France INRS (VME)	375 MGM3 100 ppm
Netherlands OEL - MAC	WNG_8: 150 mg/m³ ; WNB_15: 384 mg/m³
UK EH40 MEL (TWA)	WEL_TWA: 191 mg/m³ , 50 ppm ; WEL_STEL: 384 mg/m³ , 100 ppm ; p_R: R63 , R65 , R67 , R38 , R11 , R48/20 ; COMMENTS: SKIN
Spain - Valores Limite Ambientales - VLE	VLA-ED: 50 ppm , 192 mg/m³ ; VLA-EC: 100 ppm , 384 mg/m³ ; NOTAS: dermica , p_r , VLB , VLI ; p_FR: R11 , R38 , R48/20 , R63 , R65 , R67
Denmark TWA Data - Threshold Limit Values (TLV):	ANM: p_E , p_H ; GR: 94 mg/m³ , 25 ppm GRL: 25 ppm ; ANM: p_H
Austria - MAKs	190 mg/m? MAK 50 ppm MAK
Belgium OEL (TWA):	191 MGM3
Switzerland SUVA Limit Values at the Workplace Data - Time Weighted Average (TWA):	MAK_Wert: 50 ppm , 190 mg/m³ ; Kurz_Wert: 200 ppm , 760 mg/m³ ; HSB: p_H , p_B ; Kol_RE: k_3RE ; Kol_SS: Grp_C ; Zeitl.: 4x15 min
Sweden Threshold Limit Values Data -	Anm: p_H; KTV: 400 MGM3 , 100 PPM ; NGV: 200 MGM3 , 50 PPM
Portugal - TWAs	VLE-MP: 50 ppm ; NOT: A_4, p_P, IBE; FUND: SNC
Norway Exposure Limit Values Data - Threshold Limit Value:	KONS: 25 ppm , 94 mg/m³ ; Anm: H (SKIN)
Ireland Exposure Limit Values Data - Time Weighted Average (TWA):	TWA 50 ppm , 188 mg/m³ ; STEL 100 ppm , 560 mg/m³ ; NOT IOELV, Skin
Greece - OEL	DT_1 100 ppm , 375 mg/m³ ; DT_2 150 ppm , 560 mg/m³
Finland Exposure Limit Values Data - Time Weighted Average (TWA):	HTP_8: 50 ppm , 190 mg/m³ ; HTP_15: 100 ppm , 380 mg/m³ ; HOU: iho (SKIN) , liite 2 ; R-lauseet: R11 , R38 , R48/20 , R63 , R65 , R67
Luxembourg	Valeurs limites - 8 heures 192 mg/m³ , 50 ppm ; Valeurs limites - Court terme 384 mg/m³ , 100 ppm ; Note: Peau
Italy - OEL	192 MGM3 50 ppm
Poland - OEL:TWAs	100 mg/m? NDS

**SABIC Recommended Exposure Limits have been established for certain chemicals.*

Engineering Measures to Reduce Exposure: In the case of hazardous fumes, wear self-contained breathing apparatus. Wear face-shield and protective suit for abnormal processing problems. Handle in accordance with good industrial hygiene and safety practices. Provide for appropriate exhaust ventilation at machinery. Processing fume condensate may be a fire hazard and toxic; remove periodically from exhaust hoods, ductwork, and other surfaces using appropriate personal protection.

Hand Protection: Protective gloves should be worn. (EU: NEN-EN 374).

Eye Protection: Safety glasses with side-shields. (EU: NEN-EN 165-166). Safety glasses with side-shields or chemical goggles. In addition, use full-face shield when cleaning processing vapor condensates from hood, ducts, and other surfaces.

Respiratory Protection: In the case of hazardous fumes, wear self contained breathing apparatus. In case of insufficient ventilation wear suitable respiratory equipment. (EU: NEN-EN149). When using this product at elevated temperatures, implement engineering systems, administrative controls or a respiratory protection program (including a respirator approved for protection from organic vapors, acid, gases, and particulate matter) if processing vapors are not adequately controlled or operators experience symptoms of overexposure. If dust or powder are produced from secondary operations such as sawing or grinding, use a respirator approved for protection from dust.

Body Protection: Long sleeved clothing. (EU: NEN-EN 340-369-465).

Hygiene Measures: When using, do not eat, drink or smoke.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Appearance:	Pellets
Color:	Same as color code
Odor:	Slight None or slight
Melting point/range:	Various This product does not exhibit a sharp melting point but softens gradually over a wide range of temperatures.
Boiling point/range:	Not applicable
Autoignition Temperature:	490 °C (914°F) estimated
Vapor Pressure:	Negligible
Water Solubility:	Insoluble
Evaporation Rate:	Negligible
Specific gravity:	>1; (water = 1)
Explosive Limits	
Explosion Limits	Not determined
upper:	Not determined
Explosion Limits	25 g/m³ Not determined
lower:	Not determined
VOC content (%):	Negligible

10. STABILITY AND REACTIVITY

Stability: Stable under ambient conditions. Hazardous polymerization does not occur. Hazardous polymerization does not occur.

Conditions to Avoid: To avoid thermal decomposition, avoid elevated temperatures. Heating can result in the formation of gaseous decomposition products, some of which may be hazardous. Avoid temperatures above 490 °C without adequate ventilation. Avoid temperatures above 490°C. Do not exceed melt temperature recommendations in product literature. Purgings of hot material should be collected in small, flat, thin shapes and quenched with water to allow for rapid cooling. Do not allow product to remain in barrel at elevated temperatures for extended periods of time.

Hazardous Decomposition Products: Traces of, styrene, toluene, styrene dimers, aliphatic amines, aldehydes and alcohols, ethylbenzene and 4-vinylcyclohexene, Process vapors under recommended processing conditions may include trace levels of hydrocarbons, alkylphenols, aldehydes, Alcohols, aliphatic amines, dimethylcyclohexanone, trimethylanisole, dihydrobenzofuran.

Incompatible Products: Strong acids, strong oxidizing agents.

11. TOXICOLOGICAL INFORMATION

LD50/oral/rat: >5000 mg/kg >15 g/kg (estimated)

LD50/dermal/rabbit: >2000 mg/kg >2 g/kg estimated

Subchronic Toxicity: No information available In a 13 week dust inhalation study, laboratory rats were exposed to up to 50 mg/m^3 PPE dust for 6 hrs/day for 13 weeks with a 13-week non-exposure recovery period. There was no evidence of systemic toxicity at the highest dose. Localized toxicity was observed in the lungs and regional lymph nodes of the 50 mg/m^3 exposure group. These findings decreased in severity in the 7 and 1 mg/m^3 exposure groups. A no adverse effect level for PPE is estimated to be 7 mg/m^3 and a no observable effect level is 1 mg/m^3.

Primary Irritation: Substance does not generally irritate and is only mildly irritating to the skin

IARC: Not listed

OSHA: Not regulated

NTP: Not tested

Remarks: The toxicological data has been taken from products of similar composition

Special Studies: Polyphenylene ether: In two independent 2 year dietary studies, purebred beagles and laboratory rats were fed polyphenylene ether resin powder (up to 10% by weight in the animal diet). In both studies, there were no adverse effects on physical appearance, behavior, growth, food consumption, survival, clinical laboratory results, organ weights or gross or microscopic pathology. In a 6 month chronic inhalation study, rats and guinea pigs exposed 6 hrs/day to up to 300 mg/m^3 PPE dust developed no physical, nutritional, hematologic, clinical or pathological reaction except to lung tissue changes which consisted of macrophage accumulation, many of which were degenerative in the pulmonary alveoli. Polyphenylene ether is not a mutagen by Ames (Salmonella) Assay with and without activation.

12. ECOLOGICAL INFORMATION

Ecotoxicity Effects: Do not flush into surface water or sanitary sewer system.

Ecotoxicity - Invertebrate Data: Ecological damages are not known or expected under normal use.

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products: Where possible recycling is preferred to disposal or incineration. Descartar em conformidade con as legislação locals.

Contaminated Packaging: Empty containers should be transported/delivered using a registered waste carrier for local recycling or waste disposal.

EWC waste disposal no: 702 - waste from the manufacture, formulation, supply and use of plastics, synthetic rubber and man-made fibres.

+135-3858-6433 (GuangDong)
+188-1699-6168 (ShangHai)
+852-6957-5415 (HongKong)

14. TRANSPORT INFORMATION

Transport Classification: Not regulated as hazardous for shipment, unless noted below, under current transportation guidelines.

DOT

ADR/RID/ADN

IMDG

ICAO

IATA-DGR

15. REGULATORY INFORMATION

This substance is classified and labelled according to Annex I of Directive 67/548/EEC, as amended.

International Inventories:

TSCA (USA):	Listed
DSL (Canada):	Listed
EINECS/ELINCS (Europe):	Listed
ENCS (Japan):	Listed
IECSC (China):	Listed
KECL (Korea):	Listed
PICCS (Philippines):	Listed
AICS (Australia):	Listed
NZIoC (New Zealand):	Listed
REACH Information:	For this product's REACH related information, please contact webinquiries@sabic-ip.com

Other Inventory Information:
A "Listed" entry above means all chemical components are on the respective inventory list and/or a qualifying exemption exists for one or more components. A "Not listed" entry above indicates one or more components is restricted from import or manufacture into that country/region. Articles are exempt from registration and are therefore not listed on the national chemical inventories.

SVHC (REACH Regulation (EC) No 1907/2006 and 453/2010, as amended):
This product does not intentionally contain SVHC chemicals except as noted below. Incidental amounts of impurities, if present, would be below the threshold limit of 0.1% by weight.

California Proposition 65:
Components in this product known to the State of California to cause cancer and/or reproductive effects, are listed below:

Chemical Name	Weight %	California Proposition 65:
Toluene 108-88-3	0.1-0.3	Type of Toxicity: female ; Type of Reproductive Toxicity: developmental

RoHS EU Directive 2011/65/EU:
The subject product is in compliance with EU RoHS Directive 2011/65/EU. All below chemicals are not employed in the manufacture of the product: a.Cadmium and its compounds, b.Lead and its compounds, c.Mercury and its compounds, d.Hexavalent chromium compounds, e.Polybrominated biphenyls (PBBs), f.Polybrominated diphenyl ethers (PBDEs including Deca-BDE). The trace levels of heavy metals may be present as impurities within threshold limits (<0.1% for Pb, Hg, Cr VI, and <0.01% for Cd). We are disclosing this information, to the best of our knowledge, based upon data from our raw material manufacturers.

HMIS Rating
Health: 0
Flammability: 1
Reactivity: 0

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3
H225 - Highly flammable liquid and vapor
H361 - Suspected of damaging fertility or the unborn child in contact with skin
H304 - May be fatal if swallowed and enters airways
H373 - May cause damage to organs through prolonged or repeated exposure if swallowed
H315 - Causes skin irritation
H336 - May cause drowsiness or dizziness

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Literary Reference:	Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling.

www.sabic-ip.com
http://eur.sabic-ip.com/ordeur/pages/msds/MSDSSearch.jsp?app=sabic-ip

SDS Scope:
Europe: Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Regulation (EU) No. 453/2010. This document is also applicable in other countries and regions.

Prepared by:	Product Stewardship & Toxicology

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End of Safety Data Sheet