SAFETY DATA SHEET


1. IDENTIFICATION OF THE SUBSTANCE AND COMPANY

Trademark: CYCOLAC™
Product Code: MG47F - NA1000
Product Description: Modified Poly (acrylonitrile-butadiene-styrene) [CASRN 9010-94-0]/Poly (styrene-acrylonitrile) [CASRN 9003-54-7] blend
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
4600 AC Bergen op Zoom
The Netherlands

Manufacturer: SABIC Innovative Plastics B.V.
Plasticslaan 1
P.O. Box 117
4600 AC Bergen Op Zoom
The Netherlands

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)

E-mail: webinquiries@sabic-ip.com
Website Address: www.sabic-ip.com

2. HAZARDS IDENTIFICATION

The additives in this product 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:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS Number</th>
<th>Weight %</th>
<th>Classification (67/548/EEC):</th>
<th>GHS Classification (EC) No. 1272/2008 [CLP]:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene</td>
<td>100-42-5</td>
<td>0.1-0.3</td>
<td>R10, Xi;R36/38, Xn;R20</td>
<td>Flam. Liq. 3 (H226) Acute Tox. 4 (H332) Eye Irrit. 2 (H319) Skin Irrit. 2 (H315)</td>
</tr>
</tbody>
</table>

For the full text of the H-phrases, 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: Immediately cool the skin by rinsing with cold water after contact with hot material Wash off immediately with soap and plenty of water. 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

Precautions: Cool molten product on skin with plenty of water. Do not remove solidified product Do not peel polymer from the skin

5. FIRE-FIGHTING MEASURES

Autoignition Temperature: 508°C (972°F) estimated

Explosive Limits
upper: Not determined

lower: Not determined

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 hydrogen cyanide (hydrocyanic acid) nitrogen oxides (NOx)

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

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

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

<table>
<thead>
<tr>
<th>Handling</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage</td>
<td>Store in closed container in a dry and cool area. Keep away from heat sources and sources of ignition.</td>
</tr>
</tbody>
</table>
8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits: No components with information, unless noted below

Chemical Name: Styrene
100-42-5

Germany (DFG) - MAK
86MGM3
France INRS (VME)
215 MGM3 50 ppm
Netherlands OEL - MAC
107 MGM3
25 ppm

UK EH40 MEL (TWA)
WEL_TWA: 430 mg/m³, 100 ppm ; WEL_STEL: 1080 mg/m³, 250 ppm ; p_R: R10 , R20 , R36/38

Spain - Valores Limite Ambientales - VLE
VLA-ED: 20 ppm , 86 mg/m³ ; VLA-EC: 40 ppm , 172 mg/m³ ;
NOTAS: p_ae , VLB ; p_FR: R10 , R20 , R36/38
10 mg/m³ TWA

Russia TWA
ANM: p_H , p_K , p_L ; GR: 105 mg/m³ , 25 ppm GRL: 25 ppm ;
ANM: p_H , p_K , p_L

Denmark TWA Data - Threshold Limit Values (TLV):
Austria - MAKs
20 ppm MAK
85 mg/m³ MAK

Belgium OEL (TWA):
216 MGM3

Switzerland SUVA Limit Values at the Workplace Data -
Time Weighted Average (TWA):
MAK_Wert: 20 ppm , 85 mg/m³ ; Kurz_Wert: 40 ppm , 170 mg/m³ ;
; HSB: p_B ; Kol_SS: Grp_C ; Zeitl.: 4x15 min

Sweden Threshold Limit Values Data -
Anm: p_H, p_M; KTV: 200 MGM3 , 50 PPM ; NGV: 90 MGM3 , 20 PPM

Portugal - TWAs
VLE-CD: 40 ppm ; VLE-MP: 20 ppm ; NOT: IBE, A_4; FUND:
Neurotoxicidade, Irritação, SNC

Norway Exposure Limit Values Data - Threshold Limit Value:
KONS: 25 ppm , 105 mg/m³ ; Anm: M

Ireland Exposure Limit Values Data - Time Weighted Average (TWA):
TWA 20 ppm , 85 mg/m³ ; STEL 40 ppm , 170 mg/m³

Greece - OEL
DT_1 100 ppm , 425 mg/m³ ; DT_2 250 ppm , 1050 mg/m³

Finland Exposure Limit Values Data - Time Weighted Average (TWA):
HTP_8: 20 ppm , 86 mg/m³ ; HTP_15: 100 ppm , 430 mg/m³ ;
R-lauseet: R10 , R20 , R36/38

Italy - OEL
20 ppm

Poland - OEL:TWAs
50 mg/m³ NDS

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

Engineering Measures to 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 practice. Provide for appropriate exhaust ventilation at machinery.

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


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).


Hygiene Measures: When using, do not eat, drink or smoke.
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State:</td>
<td>Solid</td>
</tr>
<tr>
<td>Appearance:</td>
<td>Pellets</td>
</tr>
<tr>
<td>Color:</td>
<td>Same as color code</td>
</tr>
<tr>
<td>Odor:</td>
<td>None</td>
</tr>
<tr>
<td>Melting point/range:</td>
<td>Various</td>
</tr>
<tr>
<td>Autoignition Temperature:</td>
<td>508°C (972°F) estimated</td>
</tr>
<tr>
<td>Vapor Pressure:</td>
<td>Negligible</td>
</tr>
<tr>
<td>Water Solubility:</td>
<td>Insoluble</td>
</tr>
<tr>
<td>Evaporation Rate:</td>
<td>Negligible</td>
</tr>
<tr>
<td>Specific gravity:</td>
<td>&gt;1; (water = 1)</td>
</tr>
<tr>
<td>VOC content (%):</td>
<td>Negligible</td>
</tr>
<tr>
<td>Explosive Limits</td>
<td></td>
</tr>
<tr>
<td>upper:</td>
<td>Not determined</td>
</tr>
<tr>
<td>lower:</td>
<td>Not determined</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

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

Conditions to Avoid: Do not expose to temperatures above 508°C. To avoid thermal decomposition, avoid elevated temperatures. Heating can result in the formation of gaseous decomposition products, some of which may be hazardous.

Hazardous Decomposition Products: Traces of phenol, alkylphenols, nitrogen oxides (NOx), hydrogen cyanide (hydrocyanic acid), styrene, toluene, styrene dimers, aliphatic amines, aldehydes and alcohols, ethylbenzene and 4-vinylcyclohexene.
11. TOXICOLOGICAL INFORMATION

LD50/oral/rat:        >5000 mg/kg
LD50/dermal/rabbit:  >2000 mg/kg

Subchronic Toxicity:  
No information available

Styrene:  Many repeat dose toxicity studies are available in several test animal species following both oral and inhalation exposure. In rats dosed orally, effects on liver (changes in enzyme levels and increased weight) were consistently observed at concentrations of 350 mg/kg and higher. Gastrointestinal irritation and kidney weight changes are observed at higher doses. Findings were similar for beagle dogs. The no observed effect levels (NOEL) ranged from 100 mg/kg/day to about 300 mg/kg/day, depending on the duration of exposure. A series of inhalation studies were conducted in the 1940s and 1950s. Rats, guinea pigs, rabbits, and monkeys were exposed up to 8 hours/day, 5 days/week for 6 months to 650 to 2000 ppm (3 – 9.3 mg/L) and consistent signs of significant eye and nose irritation were observed at 1300 ppm and above. Histopathological lesions at this concentration typically consisted of pulmonary lesions. In more recent studies, rats exposed 6-8 hours/day for 7 days to 450 ppm, 300 ppm for 2-11 weeks, or 200-400 ppm for 4 days showed significant liver and/or kidney enzyme changes. In a standard 13-week inhalation study, rats exposed 6 hours/day for 5 days/week showed no treatment-related effects except for minor changes in the nasal olfactory epithelium at 500 ppm and above. The sub-chronic NOEL was determined to be 200 ppm. Mice exposed to 60 ppm and higher for 6 hours/day, 5 days/week for 2 weeks showed microscopic (centrilobular necrosis) liver changes. The NOEL in mice from this study was 15 ppm.

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

IARC:     Not listed
Styrene:  Group 2B (possible human carcinogen) - In subsequent reviews in 1994 and 2002, IARC chose to maintain its classification for styrene. In chronic inhalation studies, mice, but not rats develop lung tumors following styrene exposure, even though both species form DNA adducts.

OSHA:     Not regulated

NTP:      Not tested
Styrene:  is reasonably anticipated to be a human carcinogen based on limited evidence of carcinogenicity from studies in humans, sufficient evidence of carcinogenicity from studies in experimental animals, and supporting data on mechanisms of carcinogenesis (2011).

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

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste from residues / unused</td>
<td>Where possible recycling is preferred to disposal or incineration. Dispose of in accordance with local regulations.</td>
</tr>
<tr>
<td>products:</td>
<td></td>
</tr>
<tr>
<td>EWC waste disposal no:</td>
<td>702 - waste from the manufacture, formulation, supply and use of plastics, synthetic rubber and man-made fibres.</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport Classification:</td>
<td>Not regulated as hazardous for shipment, unless noted below, under current transportation guidelines.</td>
</tr>
<tr>
<td>DOT</td>
<td></td>
</tr>
<tr>
<td>ADR/RID/ADN</td>
<td></td>
</tr>
<tr>
<td>IMDG</td>
<td></td>
</tr>
<tr>
<td>ICAO</td>
<td></td>
</tr>
<tr>
<td>IATA-DGR</td>
<td></td>
</tr>
</tbody>
</table>
15. REGULATORY INFORMATION

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

International Inventories:

<table>
<thead>
<tr>
<th>Inventory</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA (USA)</td>
<td>Listed</td>
</tr>
<tr>
<td>DSL (Canada)</td>
<td>Listed</td>
</tr>
<tr>
<td>EINECS/ELINCS (Europe)</td>
<td>Listed</td>
</tr>
<tr>
<td>ENCS (Japan)</td>
<td>Listed</td>
</tr>
<tr>
<td>IECSC (China)</td>
<td>Listed</td>
</tr>
<tr>
<td>KECL (Korea)</td>
<td>Listed</td>
</tr>
<tr>
<td>PICCS (Philippines)</td>
<td>Listed</td>
</tr>
<tr>
<td>AICS (Australia)</td>
<td>Listed</td>
</tr>
<tr>
<td>NZIoC (New Zealand)</td>
<td>Listed</td>
</tr>
</tbody>
</table>

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.

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:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Weight %</th>
<th>California Proposition 65:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acrylonitrile</td>
<td>0.01-0.10</td>
<td>Type of Toxicity: cancer</td>
</tr>
<tr>
<td>107-13-1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3
H226 - Flammable liquid and vapor
H332 - Harmful if inhaled
H319 - Causes serious eye irritation
H315 - Causes skin irritation

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SDS Scope:

Prepared by: Product Stewardship & Toxicology
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End of Safety Data Sheet