



SAFETY DATA SHEET

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

Print date: 22-May-2015

Revision Number: 2

Revision date: 22-May-2015

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 P.O. Box 117 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:

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

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, CO ₂ , 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 (NO _x)
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

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	Styrene
Germany (DFG) - MAK	100-42-5
France INRS (VME)	86MGM3
Netherlands OEL - MAC	215 MGM3 50 ppm
UK EH40 MEL (TWA)	107 MGM3
Spain - Valores Limite Ambientales - VLE	25 ppm
Russia TWA	WEL_TWA: 430 mg/m ³ , 100 ppm ; WEL_STEL: 1080 mg/m ³ , 250 ppm ; p_R: R10 , R20 , R36/38
Denmark TWA Data - Threshold Limit Values (TLV):	VLA-ED: 20 ppm , 86 mg/m ³ ; VLA-EC: 40 ppm , 172 mg/m ³ ; NOTAS: p_ae , VLB ; p_FR: R10 , R20 , R36/38
Austria - MAKs	10 mg/m ³ TWA
Belgium OEL (TWA):	ANM: p_H , p_K , p_L ; GR: 105 mg/m ³ , 25 ppm GRL: 25 ppm ; ANM: p_H , p_K , p_L
Switzerland SUVA Limit Values at the Workplace Data - Time Weighted Average (TWA):	20 ppm MAK
Sweden Threshold Limit Values Data -	85 mg/m ³ MAK
Portugal - TWAs	216 MGM3
Norway Exposure Limit Values Data - Threshold Limit Value:	MAK_Wert: 20 ppm , 85 mg/m ³ ; Kurz_Wert: 40 ppm , 170 mg/m ³ ; HSB: p_B ; Kol_SS: Grp_C ; Zeitl.: 4x15 min
Ireland Exposure Limit Values Data - Time Weighted Average (TWA):	Anm: p_H , p_M; KTV: 200 MGM3 , 50 PPM ; NGV: 90 MGM3 , 20 PPM
Greece - OEL	VLE-CD: 40 ppm ; VLE-MP: 20 ppm ; NOT: IBE, A_4; FUND: Neurotoxicidade, Irritação, SNC
Finland Exposure Limit Values Data - Time Weighted Average (TWA):	KONS: 25 ppm , 105 mg/m ³ ; Anm: M
Italy - OEL	TWA 20 ppm , 85 mg/m ³ ; STEL 40 ppm , 170 mg/m ³
Poland - OEL:TWAs	DT_1 100 ppm , 425 mg/m ³ ; DT_2 250 ppm , 1050 mg/m ³

**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).
Eye Protection:	Safety glasses with side-shields. (EU: NEN-EN 165-166).
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).
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:	None
Melting point/range:	Various
Autoignition Temperature:	508°C (972°F) estimated
Vapor Pressure:	Negligible
Water Solubility:	Insoluble
Evaporation Rate:	Negligible
Specific gravity:	>1; (water = 1)
VOC content (%):	Negligible
Explosive Limits	
upper:	Not determined
lower:	Not determined

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:	<p>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.</p>
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

Special Studies:

Styrene: A reproduction study in rats exposed to 125 and 250 ppm in drinking water (approximately 14-21 mg/kg/day) produced no treatment-related effects on reproductive performance over 3-generations. The only treatment related findings were reduced pup survival index in the F1 and F2 offspring. There was no evidence of developmental effects and no other effects were reported. The parental NOEL was 250 ppm and the NOEL for the F1 and F2 offspring was 125 ppm. In developmental toxicity studies in rats, rabbits, and hamsters styrene was not a selective toxicant to the fetus and was toxic at only those doses that produced maternal toxicity.

In humans, styrene is associated with central nervous system depression (headache, fatigue, nausea, and dizziness) at inhalation concentrations greater than 50 ppm. Styrene has also been reported to reduce sensory nerve conduction in occupational settings after exposure to 100 ppm or more. Styrene has also been reported to produce color vision deficiencies (dyschromatopsia) at concentrations greater than 8 ppm (averaging 24 ppm). Twelve epidemiology studies have been reported for styrene and half have supported the hypothesis that styrene produces lymphatic and hematopoietic cancers (LHC). However, those that show an increase of LHC has generally been small in size (limited statistical power), have shown no dose-response relationship, and/or had multiple chemical exposures. Of the six studies that have not shown an association with styrene and LHC, these studies tended to be larger in size (higher statistical power), had an older study population, and had good exposure data. Overall, the weight of evidence suggests that there is not an association of LHC and styrene exposure in humans. In a recent inhalation cancer bioassay, Sprague Dawley derived rats (70/sex/group) were exposed whole body to styrene vapor at 0, 50, 200, 500, or 1000 ppm 6 h/day 5 days/week for 104 weeks. Males exposed to 500 and 1000 ppm and females exposed to 200 ppm and higher gained significantly less weight than the controls. There were no changes of toxicologic significance in hematology, clinical chemistry, urinalysis, or organ weights. Styrene-related non-neoplastic histopathologic changes were confined to the olfactory epithelium of the nasal mucosa. The incidence and severity were related to dose. There was no evidence that styrene exposure caused treatment related increases of any tumor type in males or females or in the number of tumor bearing rats in the exposed groups compared to controls. In 2-year carcinogenicity bioassays conducted by the National Toxicology Program, rats and mice (50/sex/group) received 0, 500, 1000, or 2000 mg/kg/day and 0, 150, or 300 mg/kg/day, respectively, via oral gavage. In male or female rats and female mice there was no significant difference in tumor incidence when compared to the control groups. In male mice there was a positive association between styrene dose and the incidence of the combination of adenomas and carcinomas of the lung. However, due to the high background incidence of this tumor type in male mice, no firm conclusion was drawn for the carcinogenicity. In a study that administered styrene (125 and 250 ppm) in the drinking water of rats for 2 years, there was no evidence of carcinogenicity. In other chronic inhalation toxicity studies, rats were exposed to styrene via inhalation at concentrations up to 300 ppm for 4-6 hours/day, 5 days/week, for 1 year or up to 1000 ppm for 2 years. There was a slightly increased, but not statistically significant, incidence of mammary tumors in the females in both studies. Because the control incidence was also high and there was no dose-response relationship the studies were considered to be negative.

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. Dispose of in accordance with local regulations.

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

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:
Acrylonitrile 107-13-1	0.01-0.10	Type of Toxicity: cancer

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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<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