

## Description

Lexan\* 9034 based polycarbonate sheet is the standard grade of Lexan sheet. Inherently high impact Lexan 9034 sheet is an excellent candidate for glazing for economical protection against breakage or intrusion. As Lexan has better insulation properties than glass it may contribute to lower energy costs. Lexan 9034 sheet may be thermoformed, pressure formed, cold-formed or used in flat applications.

Applicable to:

- 9034\* (applicable for all other uncoated Lexan grades designated with 903xxxx nomenclature)
- 9034V – with improved UL rating
- 9034HO – with improved optical specifications
- 90316, 90317 and 90318 – “Protect-A-Glaze” with one side textured

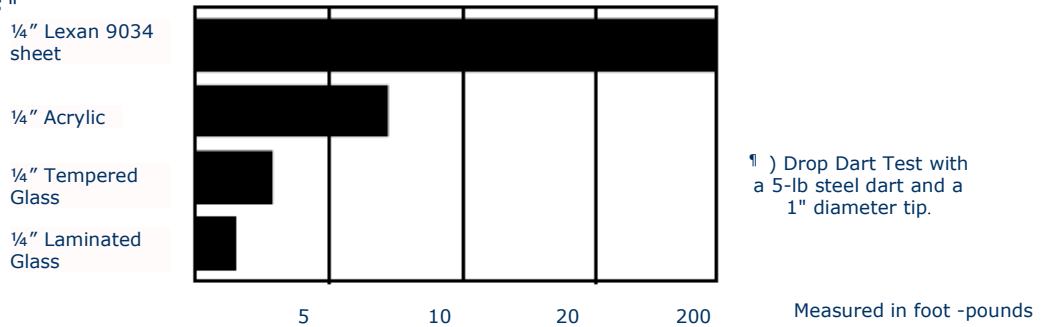
## Typical Property Values ♦

Property	Test Method	Unit	Value 9034 *	9034V	9034HO
<b>Physical</b>					
Specific Gravity	ASTM D792	—	1.20	1.20	1.20
Refractive Index @ 77°F	ASTM D542A	—	1.586	1.586	1.586
Light Transmission (Average at 0.118")	ASTM D1003	%	86	86	86
Initial Haze		HU	<1	<1	<1
Rockwell Hardness (M scale)	ASTM D785	—	70	70	70
Rockwell Hardness (R scale)	ASTM D785		118	118	118
Taber @ 100 cycles	ASTM D1044 (ANSI ZI26.1)	% haze	10	10	10
Water Absorption, 24 hrs	ASTM D570	%	0.15	0.15	0.15
Water Absorption, Equilibrium @ 73°F		%	0.35	0.35	0.35
<b>Mechanical</b>					
Tensile Strength, Yield	ASTM D638	psi	9,500	9,500	9,500
Tensile Modulus	ASTM D638	psi	345,000	345,000	345,000
Flexural Strength	ASTM D790	psi	13,500	13,500	13,500
Flexural Modulus	ASTM D790	psi	345,000	345,000	345,000
Compressive Strength	ASTM D695	psi	12,500	12,500	12,500
Compressive Modulus	ASTM D695	psi	345,000	345,000	345,000
Poisson's Ratio	ASTM E132	—	0.37	0.37	0.37
Izod Impact Strength Notched @ 0.118"	ASTM D256A	ft-lbs/in	12-16	12-16	12-16
Unnotched @ 0.118"			60	60	60
			(no failure)	(no failure)	(no failure)
Shear Strength @ Yield	ASTM D732	psi	6,000	6,000	6,000
Shear Modulus	ASTM D732	psi	0.2	0.2	0.2
<b>Thermal</b>					
Coefficient of Thermal Expansion	ASTM D696	in/in/°F	3.75x 10 <sup>-5</sup>	3.75x10 <sup>-5</sup>	3.75x10 <sup>-5</sup>
Coefficient of Thermal Conductivity	ASTM C177	Btu•in/hr•ft <sup>2</sup> •°F	1.35		1.35
Specific Heat @ 40°C	ASTM C351	BTU/lb-°F	0.30		0.30
Heat Deflection Temperature @ 264 psi	ASTM D648	°F	270	266	270
@ 66 psi			280		280
Brittle Temperature (on resin)	ASTM D746	°F	-211		211
<b>Flammability</b>					
Horizontal Burn (Flame Spread) AEB	ASTM D635	in	<1		<1
Ignition Temperature, Self		°F	>1000	>1000	>1000
UL Flammability (File # E61257) Add link to the UL site	UL94HB UL94VO	Pass/Fail Pass/Fail		>0.236 <sup>Y</sup> >0.059 <sup>Y</sup>	
<b>Electrical</b>					
Dielectric Constant @ 60 Hz	ASTM D150	—	3.17		
Volume Resistivity	ASTM D257	Ohm-cm	8.2 x 10 <sup>16</sup>		
Dissipation Factor (@60 Hz) also known as Power Factor	ASTM D150		0.0009		

♦ These are typical properties and are not intended for specification purposes. If minimum certifiable properties are required, please contact your local SABIC Innovative Plastics representative or SABIC Innovative Plastics Quality Services Department.

\* Trademark of SABIC Innovative Plastics IP BV

## Impact Resistance<sup>¶</sup>



## Chemical Resistance

Lexan 9034 sheet has sufficient resistance to most mineral oils, greases, aliphatic hydrocarbons and acids under low or moderate stress levels. Specific (application related) testing is always advised, especially in applications where the Lexan 9034 sheet will come into contact with aggressive chemicals.

## Processing

Lexan 9034 sheet can be used for thermoforming. It offers high, deep draw ratios, equal wall thickness distribution, and it can be formed into complex shapes using standard thermoforming equipment. Sandwich type heating systems give the best results. Lexan 9034 sheet has a forming temperature range of 350–400°F. When forming, a draft angle of at least 3° should be allowed, and post mold shrinkage of .007–.009 in/in taken into account.

## Pre-drying

It is important to ensure that Lexan 9034 sheet is free of moisture prior to thermoforming. A hot air circulating oven set at 250°F is recommended. Pre-drying times vary from 3–24 hours, depending on sheet thickness.

## Assembling / Painting

Parts made from Lexan 9034 sheet can be assembled with plastics, metals, rubber and other materials using many types of adhesive bonding, welding and mechanical fastening techniques. Since some of these materials can cause environmental stress cracking, please consult SABIC Innovative Plastics, for advice on specific applications. A list of approved paint systems and suppliers is available upon request.



\* Trademark of SABIC Innovative Plastics IP BV

Americas:  
SABIC Innovative Plastics  
Specialty Film & Sheet  
One Plastics Avenue  
Pittsfield, MA 01201  
USA  
Tel. (1) (413) 448 5400  
Fax. (1) (413) 448 7506  
Toll free: 1-800 451 3147

Europe:  
SABIC Innovative Plastics  
Specialty Film & Sheet  
Plasticslaan 1  
NL - 4612 PX Bergen op Zoom  
The Netherlands  
Tel. (31) (164) 292911  
Fax. (31) (164) 293272

Pacific:  
SABIC Innovative Plastics  
Specialty Film & Sheet  
1266 Nanjing Road (W)  
16th Floor, Plaza 66  
200040 Shanghai, China  
Tel. (86) 21 6288 1088  
Fax. (86) 21 6288 0818

THE MATERIALS, PRODUCTS AND SERVICES OF SABIC INNOVATIVE PLASTICS HOLDING BV, ITS SUBSIDIARIES AND AFFILIATES ("SELLER"), ARE SOLD SUBJECT TO SELLER'S STANDARD CONDITIONS OF SALE, WHICH CAN BE FOUND AT <http://www.sabic-ip.com> AND ARE AVAILABLE UPON REQUEST. ALTHOUGH ANY INFORMATION OR RECOMMENDATION CONTAINED HEREIN IS GIVEN IN GOOD FAITH, SELLER MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, (i) THAT THE RESULTS DESCRIBED HEREIN WILL BE OBTAINED UNDER END-USE CONDITIONS, OR (ii) AS TO THE EFFECTIVENESS OR SAFETY OF ANY DESIGN INCORPORATING SELLER'S PRODUCTS, SERVICES OR RECOMMENDATIONS. EXCEPT AS PROVIDED IN SELLER'S STANDARD CONDITIONS OF SALE, SELLER SHALL NOT BE RESPONSIBLE FOR ANY LOSS RESULTING FROM ANY USE OF ITS PRODUCTS OR SERVICES DESCRIBED HEREIN. Each user is responsible for making its own determination as to the suitability of Seller's products, services or recommendations for the user's particular use through appropriate end-use testing and analysis. Nothing in any document or oral statement shall be deemed to alter or waive any provision of Seller's Standard Conditions of Sale or this Disclaimer, unless it is specifically agreed to in a writing signed by Seller. No statement by Seller concerning a possible use of any product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right of Seller or as a recommendation for the use of such product, service or design in a manner that infringes any patent or other intellectual property right.

SABIC Innovative Plastics is a trademark of SABIC Holding Europe BV

\* Trademarks of SABIC Innovative Plastics IP BV

## MATERIAL SAFETY DATA SHEET

Print date: 15-Sep-2008

Revision Number: 1

Revision date: 15-Sep-2008

### 1. IDENTIFICATION OF THE SUBSTANCE AND COMPANY

<b>Trade Name:</b>	LEXAN* Sheet
<b>Product ID:</b>	9034 -112
<b>Product Description:</b>	Poly (bisphenol-A-carbonate) [CASRN 111211-39-3 or 103598-77-2] Sheet
<b>Product Type:</b>	Commercial Product
<b>Recommended use:</b>	May be used as received, processed or thermoformed to produce other articles, or as a component of other industrial products.
<b>Company:</b>	SABIC Innovative Plastics One Plastics Avenue Pittsfield, MA 01201 USA (413) 448-5400 www.sabic-ip.com
<b>Emergency Telephone Number:</b>	800/447-4545
<b>Emergency Transportation/CHEMTREC (24 HOUR):</b>	800/424-9300

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

This product consists primarily of high molecular weight polymers which are not expected to be hazardous.

### 3. HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW:

- Plastic film or sheet
- 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.
- Secondary operations, such as grinding, sanding, or sawing can produce dust which may present an explosion or respiratory hazard.

HMIS Rating

Health: 0

Flammability: 1

Reactivity: 0

**Skin Contact:**

Not likely to cause irritation.

**Eye Contact:**

Resin particles, like other inert materials, are mechanically irritating to eyes.

**Inhalation:**

Inhalation unlikely due to physical form.

**Ingestion:**

Ingestion not likely due to physical form.

#### Chronic/Carcinogenic Information

**Resin Issues:**

Processing fumes may cause irritation to the eyes, skin, and respiratory tract. In cases of severe exposure, nausea and headache can also occur. Grease-like processing fume 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.

### 4. FIRST AID MEASURES

**Inhalation:**

No specific treatment is necessary since this material is not likely to be hazardous by inhalation. If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop.

**Skin Contact:**

Wash with water and soap as a precaution. Get medical attention if irritation develops or persists. For hot product, immediately immerse in or flush affected area with large amounts of cold water to dissipate heat. Cover with clean cotton sheeting or gauze and get prompt medical attention.

**Eye Contact:**

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.

**Ingestion:**

No hazards which require special first aid measures.

**Precautions:**

Processing fumes 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.

## 5. FIRE-FIGHTING MEASURES

### Explosive Limits

upper: Not applicable  
lower: Not applicable

### Suitable Extinguishing Media:

Water spray mist or foam.

### Extinguishing media which must not be used for safety reasons:

Carbon dioxide and dry chemical are not recommended because their lack of cooling capacity may permit re-ignition.

### Hazards from Combustion Products:

Fire will produce dense black smoke containing hazardous combustion products, carbon oxides, hydrocarbon fragments.

### Special Protective Equipment for Firefighters:

Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products.

### Specific Hazards:

Take precautionary measures against static discharges. Thermal decomposition can lead to release of irritating gases and vapors. Dust formed by operations such as cutting or grinding may form an explosive mixture in air.

## 6. ACCIDENTAL RELEASE MEASURES

### Clean up:

Gather and store in a closed container pending a recyclability or waste disposal evaluation.

### Personal Precautions:

See section 8.

### Environmental Precautions:

Should not be released into the environment. Do not flush into surface water or sanitary sewer system.

## 7. HANDLING AND STORAGE

### Handling:

Handle in accordance with good industrial hygiene and safety practice. Provide for appropriate exhaust ventilation and dust collection at machinery. Avoid dust formation. Accumulation of waste films, sheets and/or masking may create a slipping hazard.

### Storage:

Keep away from heat and sources of ignition.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>Engineering Measures to Reduce Exposure:</b>	Handle in accordance with good industrial hygiene and safety practice. Processing fume condensate may be a fire hazard and toxic; remove periodically from exhaust hoods, ductwork, and other surfaces using appropriate personal protection.
<b>Hand Protection:</b>	Protective gloves
<b>Eye Protection:</b>	Safety glasses
<b>Respiratory Protection:</b>	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 fumes 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.
<b>Skin and Body Protection:</b>	Long sleeved clothing
<b>Hygiene Measures:</b>	When using, do not eat, drink or smoke.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State:</b>	Solid
<b>Appearance:</b>	Sheet or film
<b>Color:</b>	Various
<b>Odor:</b>	None or slight
<b>Melting point/range:</b>	This product does not exhibit a sharp melting point but softens gradually over a wide range of temperatures.
<b>Explosive Limits</b>	
<b>upper:</b>	Not applicable
<b>lower:</b>	Not applicable

## 10. STABILITY AND REACTIVITY

<b>Stability:</b>	Stable at normal conditions. Hazardous polymerization does not occur..
<b>Conditions to Avoid:</b>	Do not exceed melt temperature recommendations in product literature.
<b>Hazardous Decomposition Products:</b>	Processing fumes evolved at recommended processing conditions may include trace levels of hydrocarbon fragments, phenols, alkylphenols, diarylcarbonates.

## 11. TOXICOLOGICAL INFORMATION

### Acute Toxicity:

<b>LD50/oral/rat:</b>	>5000 mg/kg, estimated
<b>LD50/dermal/rabbit:</b>	>2000 mg/kg, estimated
<b>Inhalation:</b>	Inhalation unlikely due to physical form.
<b>Eye Contact:</b>	Resin particles, like other inert materials, are mechanically irritating to eyes.
<b>Skin Contact:</b>	Not likely to cause irritation.
<b>Ingestion:</b>	Ingestion not likely due to physical form.
<b>Chronic Toxicity:</b>	No information available
<b>IARC:</b>	Not listed
<b>OSHA:</b>	Not regulated
<b>NTP:</b>	Not tested
<b>Remarks:</b>	The toxicological data has been taken from products of similar composition
<b>Special Studies:</b>	Processing fumes from similar products are not considered toxic. In acute inhalation tests, laboratory rats were exposed to processing fumes at concentrations exaggerating those that would likely occur in workplace situations. No deaths or signs of toxicity, except transient irritancy in some cases, were noted during the 6 hour fume exposure tests. There were no distinct or consistent treatment related tissue or organ changes noted in gross necropsies.

## 12. ECOLOGICAL INFORMATION

<b>Other information:</b>	Ecological damages are not known or expected under normal use.
---------------------------	--

## 13. DISPOSAL CONSIDERATIONS

<b>Waste Disposal:</b>	Recycling is encouraged. Landfill or incinerate in accordance with federal, state and local requirements. Collected processing fume condensates and incinerator ash should be tested to determine waste classification.
<b>US EPA Waste number:</b>	None



## 14. TRANSPORT INFORMATION

**Transport Classification:**

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

DOT

ADR/RID/ADNR

IMDG

ICAO

IATA-DGR

MEXICO

## 15. REGULATORY INFORMATION

**International Inventories:**

These film and sheet products are considered articles and thus exempt from inventory listing.

**CERCLA/SARA 311/312/313:**

This product is a non-hazardous article and therefore not subject to the requirements of Title III of SARA (Emergency Planning and Community Right-To-Know Act).

**Canada:**

**This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.**

**WHMIS hazard class:**

Non-controlled

**California Proposition 65:**

This product does not contain components known to the State of California to cause cancer and/or reproductive effects.

**RoHS EU Directive 2002/95/EC:**

This product complies with RoHS - it does not intentionally contain banned chemicals.

## 16. OTHER INFORMATION

LEXAN\* Film LEXAN\* Sheet is a registered trademark of SABIC Innovative Plastics

**Prepared by:** Product Stewardship & Toxicology

DISCLAIMER: This Material Safety Data Sheet [MSDS] information is provided based on the Hazard Communication Regulations for your region or country and for the use of the persons required to receive this information under those regulations. The information is neither designed nor recommended for any other use or for use by any other person, including for compliance with other laws. SABIC Innovative Plastics does not warrant the suitability for use of this MSDS for any other material or product not specifically identified herein. SABIC Innovative Plastics does not warrant the accuracy or authenticity of this MSDS unless it has been obtained directly from SABIC Innovative Plastics, or posted or viewed on a SABIC Innovative Plastics website. Modification of this MSDS, unless specifically authorized by SABIC Innovative Plastics, is strictly prohibited. This MSDS is based on information, that is believed to be reliable, but may be subject to change as new information becomes available. Because it is not possible to anticipate all conditions of use, additional safety precautions may be required. Since the use of this material is not under SABIC Innovative Plastics' control, each user is responsible for making its own determination as to the safe and proper handling of this material in its own particular use of this material. SABIC INNOVATIVE PLASTICS MAKES NO REPRESENTATION OR WARRANTY, EITHER EXPRESS OR IMPLIED, INCLUDING AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Each user should read and understand this information and incorporate it into individual site safety programs as required by applicable hazard communication standards and regulations.

**End of Material Safety Data Sheet**