



ADVANCED POLYMER, INC.

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HARDLEN[®] BS-40

HARDLEN BS-40 is a low molecular weight, high chlorine content, chlorinated polyolefin resin solution designed to improve adhesion to olefin based polymers including polypropylene, TPO and EPDM. When used in conjunction with other resins such as acrylics, urethanes, alkyds, etc., Hardlen BS-40 will act as a compatibilizer.

CHARACTERISTICS

- Excellent compatibility with a wide range of resins including acrylics, alkyds, epoxies, urethanes, polyesters, etc.
- Good adhesion on polypropylene, TPO and EPDM
- Can be used as primer or as coating additive

PACKAGING

HARDLEN BS-40 is supplied in 8 oz. samples or 397 lb. drums.

Hardlen[®] is a registered trademark of Toyobo Co. Ltd

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I want to know more!

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TYPICAL PROPERTIES

Appearance:	Pale yellow solution
Chlorine Content:	40%
Resin Content:	40% (in toluene)
Solution Viscosity:	20-100 mPa*s
Base Resin Type:	Hard
Molecular Weight:	Low

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Revised November 16, 2010

HARDLEN BS-40

Section 1 - Product Identity

Product Name: HARDLEN BS-40
 Chemical Name/Family: Chlorinated Polypropylene
 Product Use: Adhesion promoter
 24 Hour Emergency Number: 800-424-9300
 24 Hour Chemtrec Number: 800-424-9300

Section 2 - Composition/Information on Ingredients

CHEMICAL	CAS #	TWA	STEL	PEL	Percent
A. Chlorinated Polypropylene	68442-33-1				36
B. 2-Ethyl-2-(hydroxymethyl)-1,3-propanediol polymer with (chloromethyl) oxirane	30499-70-8				4
C. Chloroform	67-66-3				0.6 – 0.8
D. Toluene	108-88-3	200 ppm	150 ppm		59.2 – 59.4

OSHA HAZARDOUS COMPONENTS (29CFR1910.1200): Component C and D are hazardous component.

Section 3 - Hazard Identification

Emergency Overview: Highly flammable liquid and vapor.
 Color: Pale Yellow
 Physical State: Liquid
 Odor: Distinct
 Primary Routes of Entry: Inhalation: Yes Dermal: Yes Ingestion: Yes
 Carcinogenicity:
 NTP: No IARC Monograph: Toluene: 3 OSHA Regulated: No
 Potential Health Effects:
 Skin: Remove contaminated clothing, jewelry, and shoes immediately. Wash with soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15-20 minutes). Get medical attention, if needed.
 Eye: Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains. Get medical attention, if needed.
 Ingestion: Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.
 Inhalation: Remove from exposure area to fresh air immediately. Use a bag valve mask or similar device to perform artificial respiration (rescue breathing) if needed. Get medical attention.
 Medical Condition Generally Aggravated by Exposure: Repeated or prolonged skin contact may cause a skin rash. Repeated exposure of the eyes to high concentrations of vapor may cause reversible eye damage. Repeated exposure can damage bone marrow, causing low blood cell count. May damage the liver and kidneys.

Section 4 - First Aid Measures

Skin Contact:	Remove contaminated clothing, jewelry, and shoes immediately. Wash with soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15-20 minutes). Get medical attention, if needed.
Eye Contact:	Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains. Get medical attention, if needed.
Ingestion:	Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.
Inhalation:	Remove from exposure area to fresh air immediately. Use a bag valve mask or similar device to perform artificial respiration (rescue breathing) if needed. Get medical attention.

Section 5 - Fire-Fighting Measures

Flash Point (method used):	Toluene: 41°F (5°C) (CC)
Flammable Limits in Air (% by Volume):	Toluene: 1.2 to 7.1% by volume
Fire & Explosion Hazard:	Severe fire hazard when exposed to heat or flame.
Extinguishing Media:	Regular dry chemical, carbon dioxide, water, regular foam Large fires: Use regular foam or flood with fine water spray.
Special Fire Fighting Procedures:	Keep personal removed from and upwind of fire. Wear full fire-fighting turn-out gear (full bunker gear) and respiratory protection (self contained breathing apparatus). Move container from fire area if it can be done without risk. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products. Cool container with water spray.
Unusual Fire and Explosion Hazard:	Elevated temperatures can cause decomposition.
Hazardous Decomposition Products:	Thermal decomposition products: oxides of carbon and chlorine.

HAZARD CLASSIFICATION

Health Hazard:	2
Flammability:	3
Reactivity:	0

Section 6 - Accidental Release Measures

Methods for Cleaning Up:	Land Spill: Soak up with sawdust, sand, oil dry or other non-combustible absorbent material. Collect spilled material into suitable container. Water Spill: Cover with absorbent sheets, spill-control pads or pillows. Apply detergents, soaps, alcohols or another surface active agent. Remove trapped material with suction hoses.
Environmental Precautions:	Keep out of water supplies and sewers. Advise authorities if product has entered or may enter sewers, watercourses, or extensive land areas.
Personal Precautions:	Keep people away. Do not touch spilled material. Ventilate confined spaces. Minimize breathing vapors. Use personal protective equipment. Isolate hazard and deny entry. Wash hands thoroughly after handling.

Section 7 - Handling & Storage

Handling Conditions:	Avoid contact with skin, eyes, or clothing. Wash thoroughly after handling. Use spark-proof tools and explosion-proof equipment. Use only clean, dry, utensils in handling. ***Agitate well before using***
Storage Conditions:	Store at room temperature. Store in a cool dry place. Keep separated from incompatible substances. Store in a tightly closed container. Grounding and bonding required.

Section 8 - Exposure Controls/Personal Protection

Engineering Controls:	Use explosion-proof equipment.
Ventilation:	Provide local exhaust ventilation system.
Respiratory Protection:	If the exposure limit is exceeded and engineering controls are not feasible, a half-face organic vapor respirator may be worn for up to ten times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece organic vapor respirator may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest.
Eye Protection:	Use chemical safety goggles and/or a full face shield where splashing is possible.
Skin Protection:	Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
Other Protective Equipment:	Provide emergency eye wash fountain and quick drench shower in work area.
Work Hygienic Measures:	Wash hands after use.
Exposure Guidelines:	For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres. Where respirators are required, you must have a written program covering the basic requirements in the OSHA respirator standard. These include training, fit testing, medical approval, cleaning, maintenance, cartridge change schedules, etc. See 29CFR1910.134 for details.

Section 9 - Physical and Chemical Properties

Boiling Point:	Toluene: 231.3 °F (110.7°C)
Specific Gravity (H ₂ O=1):	0.9
Vapor Pressure:	Toluene : 1.5 Pa / 69.5°C
Vapor Density (Air=1):	Toluene : 3.14 (air=1)
Percent Volatile by Weight:	60
Evaporation Rate (BuAc=1):	N/A
Solubility in Water:	Insoluble
Appearance and Odor:	Pale yellow liquid with distinct odor.

Section 10 - Stability and Reactivity

Stability:	Stable: X	Unstable:
Condition to Avoid:	Avoid heat, flames, sparks and other sources of ignition. Avoid with incompatible materials. Containers may rupture or explode if exposed to heat.	
Incompatibilities:	Combustible materials, acids, oxidizing materials.	
Hazardous Decomposition or By-Products:	Oxides of carbon and chlorine.	
Hazardous Polymerization:	May Occur:	May Not Occur: X

Section 11 - Toxicological Information

Acute Toxicity:	Toluene:
	636 mg/kg Oral-rat LD50
	200 ppm Inhalation-human TCL ₀
	400 ppm/24hrs Inhalation – Mouse LC50
	14100 µ/kg Skin-Rabbit LD50
Chronic Toxicity:	No information available.
Sensitization:	No information available.
Mutagen Effects:	Unscheduled DNA synthesis - Escherichia coli 1 pph; unscheduled DNA synthesis - other microorganisms 1 pph 15 minute(s)-continuous; sex chromosome loss and non disjunction – Drosophila melanogaster oral 1 pph; other mutation test systems grasshopper inhalation 20pph 16hour(s); DNA damage - rat liver 30 µmol/L; cytogenetic analysis - rat inhalation 5400 µg/m ³ 16 week(s)-intermittent; cytogenetic analysis –rat subcutaneous 9600 mg/kg 12 day(s)-intermittent; micronucleus test – mouse oral 200 mg/kg; micronucleus test - mouse intraperitoneal 433µg/kg 24 hour(s).

Section 12 - Ecological Information

Environmental Toxicity:	No information available
Bioaccumulative Potential:	No information available

Section 13 - Disposal Considerations

Waste Disposal Method:	Comply with all federal, state and local regulations. Do not dump this material into sewers, on the ground or into any body of water. Dissolve or mix with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
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Section 14 - Transport Information

Land Transport (DOT, ADR, RID):	Product Name	Hardlen BS-40
	DOT Proper Shipping Name	Resin solution, Flammable (contains Toluene CAS# 108-88-3)
	Hazard Class	3
	UN Number	UN1866
	Packing Group	II

Label Requirements

Flammable Liquid

Section 15 – Regulatory Information

International Inventories

TSCA (USA)	Yes
DSL (Canada)	Yes
EINECS (Europe)	Chlorinated Polypropylene: Substance Assumed to be applied 2-Ethyl-2-(hydroxymethyl)-1,3-propanediol polymer with (chloromethyl)oxirane: No
ENCS (Japan)	Yes
IECSC (China)	Yes
KECL (Korea)	Yes
PICCS (Philippines)	No information available
AICS (Australia)	No information available
ERMA (New Zealand)	No information available

Federal Regulations

SARA 313	Toluene (CAS# 108-88-3)
SARA 311/312	No information available
Clean Water Act	No information available
Clean Air Act, Section 112 HAPs (see 40CFR61)	No information available

State Regulations

California Proposition 65: This product contains the following Proposition 65 chemicals

<u>Chemical Name</u>	<u>CAS#</u>	<u>Percent</u>
Toluene	108-88-3	59

Section 16 - Other Information

Date PreparedApril 29, 2010
Prepared ByAPI
Date RevisedNovember 18, 2010
Revised ByAPI

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