MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Product name	**BOSC4L**
MSDS name	BOSCODUR® 4L
Product name(s) covered	See Section 16 for Product Names Covered.
CAS #	Mixture
Product use	Curing Agent
Generic description	Solvent Dispersed Isocyanate Formulation
Manufacturer	Bostik, Inc. 211 Boston Street Middleton, MA 01949 USA
24 hour emergency assistance	Telephone: 1-800-227-0332 (Outside U.S.) 1-703-527-3887
General assistance	Telephone: 1-978-777-0100
MSDS assistance	Telephone: 1-978-750-7208

2. Hazards Identification

Emergency overview

Liquid and vapors are flammable. Contact may cause skin and eye irritation. Mist may cause nose and throat irritation. Ingestion will cause nausea, vomiting, pain, upset stomach, and diarrhea. Thermal decomposition/burning may produce toxic gases and fumes. Closed containers may rupture when exposed to high temperatures, or when the product has been contaminated with water. Avoid breathing hot mists and vapors. This product contains a respiratory and skin sensitizer. Causes respiratory tract irritation and may cause allergic respiratory reaction. May cause permanent respiratory damage. Product vapors are potentially irritating to skin. May cause allergic skin reaction and dermatitis.

Potential health effects

Eyes

Liquid or vapors may irritate the eyes. Prolonged or repeated contact may worsen irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May lead to permanent damage if not treated promptly. May cause temporary corneal injury.

Skin

This product may cause irritation to the skin. Prolonged or repeated contact with this product may dry and/or defat the skin. This product may be harmful if it is absorbed through the skin. Isocyanates may react with skin protein and moisture to cause itching, reddening, swelling, scaling or blistering. Individuals previously sensitized to this material may experience these symptoms from exposure to very small amounts of liquid or vapor.

Inhalation

This product may cause irritation to the respiratory system. Excessive inhalation of this materia causes headache, dizziness, nausea and incoordination. Single large does, and/or repeated exposures, may lead to sensitization to diisocyanates or polyisocyanates (asthma or asthma-like symptoms), causing an individual to experience adverse effects at exposure levels well below exposure limits or guidelines. Symptoms may include chest tightness, wheezing, shortness of breath, coughing or asthmatic attack, and may be delayed up to several hours. Extreme asthmatic reactions can be life threatening. Once sensitized, an individual may experience adverse symptoms upon exposure to dust, cold air or other irritants. Sensitization can last several months, years or be permanent in some cases.

Ingestion

This product is harmful if swallowed. Ingestion can cause gastrointestinal irritation, nausea, vomiting and diarrhea. This product may produce corrosive damage to the gastrointestinal tract if it is swallowed.

Target organs

Lungs, skin and eyes. Central nervous system. Kidneys. The lungs and skin may be targeted and damaged by components of this product.

Signs and symptoms

Signs and symptoms of overexposure to this product include headache, irritation of upper respiratory tract, asthmatic symptoms, chest tightness, breathing difficulty, coughing, sore throat, eye irritation, skin irritation and/or diarrhea.

Hazard statements

This product contains Methylene Diphenyl Isocyanate (MDI) which is a potential skin sensitizer and has been shown to alter cells in certain experiments. Although inconclusive, these cellular changes are thought to indicate potential carcinogenicity. Risk to your health depends on duration and concentration of exposure.

3. Composition / Information on Ingredients

Components	CAS #	Percent
Methyl ethyl ketone	78-93-3	60 - 100
Polymethylene Polyphenylene Isocyanate	9016-87-9	5 - 10
Methylene Diphenyl Isocyanate (MDI)	101-68-8	5 - 10

4. First Aid Measures

First aid procedures

Eye contact — In case of contact, immediately flush eyes with large amounts of water, continuing to flush for 15 minutes. Get medical attention or advice.

Skin contact — For skin contact flush with large amounts of water. If irritation persists, repeat flushing and get medical attention. Discard any shoes or clothing items that cannot be decontaminated. For severe exposure, immediately get under a safety shower and begin rinsing.

Inhalation — Move person to non-contaminated air. Call a physician if symptoms develop or persist. Administer oxygen or artificial respiration as needed.

Ingestion — If the material is swallowed, get immediate medical attention or advice. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Never give anything by mouth to a victim who is unconscious or is having convulsions.

Notes to physician — This material, if aspirated into the lungs, may cause chemical pneumonitis; treat the affectec person appropriately. If overexposure to the solvents in this product is suspected, testing should include nervous system and brain effects including recent memory, mood, concentration, headaches and altered sleep patterns. Liver and kidney function should be evaluated. Eyes: Stain for evidence of corneal injury. If cornea is burned, apply antibiotic/steroid preparation as needed. Skin: This product contains a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn. Ingestion: Treat symptomatically. Inhalation: This material contains a known pulmonary sensitizer. Any individual experiencing dermal or pulmonary sensitization should be removed from exposure to any diisocyanate. May aggravate existing heart conditions, particularly those with abnormal heart rhythms.

5. Fire Fighting Measures

Hazardous combustion products — Additional decomposition products include oxides of nitrogen, amines, hydrogen cyanide and isocyanate-containing compounds.

Extinguishing media

Suitable extinguishing media — Use water to cool fire-exposed containers and to protect personnel. Do not direct a solid stream of water or foam into hot, burning pools; this may result in frothing and increase fire intensity.

Basic fire fighting procedures — Empty containers may retain product residue including Flammable or Explosive vapors. Do not cut, drill, grind, or weld near full, partially full, or empty product containers.

Fire fighting equipment/instructions — Firefighters should wear full protective clothing including self contained breathing apparatus. Avoid contact with isocyanates. During a fire, isocyanate vapors and other irritating and highly toxic gases may be produced.

Sensitivity to static discharge — Sparks generated by static discharge may ignite this product or its vapors. All containers and equipment must be bonded or grounded to minimize risk.

Unusual fire & explosion hazards — During a fire, irritating and highly toxic gases may be generated during combustion or decomposition. Vapors may be heavier than air and may travel long distances along the ground before igniting back to vapor source. High temperatures can cause sealed containers to rupture due to a buildup of internal pressures. Cool with water.

Flash point — 29 °F (-1.7 °C)

6. Accidental Release Measures

Emergency action — WARNING, Flammable. Eliminate all sources of ignition. Evacuate the area promptly and keep upwind of the spilled material. Isolate the spill area to prevent people from entering. Wear appropriate protective equipment and clothing during clean-up.

Containment procedures	Isolate spill area. Stop discharge if safe to do so. Stop material from contaminating soil or from entering sewers or water streams. Liquid spills: Cover spills with absorbent clay or sawdust and collect material in open container and neutralize with a solution containing 2% liquid detergent, 3% concentrated ammonium hydroxide and 95% water. Wash spill area clean with the neutralization solution. Remove container to a safe place, cover loosely and allow to stand for 24 to 48 hours letting evolved carbon dioxide escape. Collect and contain for disposal. Pellet or chip spill: Collect and contain for salvage or disposal. Molten adhesive spill: Placard hot material, allow to cool and remove. If material is not cured once cooled, follow neutralization directions for liquids listed above. Collect and contain for disposal.
Reporting	See Federal reporting requirements listed in Section 15. We recommend you contact local authorities to determine if there may be other local reporting requirements.

7. Handling and Storage

For Commercial Use Only - Not Packaged or Labeled for Home Use!

Handling	Keep this product from heat, sparks, or open flame. Avoid getting this material into contact with your skin and eyes. Wash hands thoroughly after handling, especially before eating, drinking, smoking, and using restroom facilities. Wash contaminated goggles, face shields, and gloves. Professionally launder contaminated clothing before re-use. Do not reuse the empty container. Do not breathe gas/fumes/vapor/spray. Wear respiratory protection if the material is heated, sprayed, used in a confined space or if exposure limit is exceeded. This product can produce asthmatic sensitization. Individuals with lung or breathing problems or prior allergic reactions to isocyanates must avoid fumes from this product. Wear appropriate protective equipment to avoid contact with skin and eyes.
Storage	Keep the container tightly closed and in a cool, well-ventilated place. Do not handle or store near an open flame, heat or other sources of ignition. All containers must be bonded or grounded to minimize risk.
Empty container precaution	Attention! Follow label warnings even after container is emptied since empty containers may retain product residues. Do not reuse empty container without professional cleaning for food, clothing, or products for human or animal consumption, or where skin contact can occur. Do not heat or cut empty container with electric or gas torch.

8. Exposure Controls / Personal Protection

Engineering controls	Provide local and general exhaust ventilation to effectively remove and prevent buildup of any vapors or mists generated from the handling of this product. Explosion proof exhaust ventilation should be used. Additional area ventilation or local exhaust may be required to maintain air concentrations below recommended exposure limits.
Personal protective equipment	
Eye protection	Wear safety glasses; chemical goggles (if splashing is possible). Contact lenses should not be worn.
Skin and body protection	Impervious gloves should be used at all times when handling this product. Recommended gloves include rubber, neoprene, nitrile or viton. Use of protective coveralls and long sleeves is recommended.
Respiratory protection	Avoid breathing vapor and/or mists. If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection. High airborne concentrations may necessitate the use of self-contained breathing apparatus (SCBA) or a supplied air respirator.
General	Eyewash fountains and emergency showers should be readily available. Use good industrial hygiene practices in handling this material.

Additional exposure data

US ACGIH Threshold Limit Values: Time Weighted Average (TWA): mg/m3 & ppm

Methylene Diphenyl Isocyanate (MDI)	101-68-8	METHYLENE BISPHENYL ISOCYANATE (MDI) 0.005 PPM
Methyl ethyl ketone	78-93-3	METHYL ETHYL KETONE (MEK) 200 PPM

US NIOSH Pocket Guide to Chemical Hazards: Ceiling Limit Value and Time Period (if specified)

Methylene Diphenyl Isocyanate (MDI)	101-68-8	METHYLENE BISPHENYL ISOCYANATE 0.2 MGM3 - 0.020 PPM 10-min

US OSHA Table Z-1-A: Time Weighted Average (TWA): mg/m3 & ppm

Methyl ethyl ketone	78-93-3	2-BUTANONE 590 MGM3 - 200 PPM

9. Physical & Chemical Properties

Target solids	14 %

pH	N/A
Density	0.851 g/cc
Odor	Solvent
Color	Brown
Physical state	Liquid
Freeze protect	No

10. Chemical Stability & Reactivity Information

Hazardous reactions/decomposition products	If product is burned carbon monoxide, carbon dioxide, acetic acid, vinyl acetate, and other unknown products may be produced. Additionally, depending on conditions, some aliphatic aldehydes and carboxylic acids may be formed. Additional decomposition products include oxides of nitrogen, amines, hydrogen cyanide and isocyanate-containing compounds.
Hazardous polymerization	Hazardous polymerization can occur with elevated temperatures or contact with water.
Conditions to avoid	Extremes of temperature and direct sunlight. Keep away from sources of ignition. Avoid amines, strong bases, alcohols and metallic hydrides.
Stability	This product may react with strong acids, bases and oxidizing agents. This product is stable under normal conditions but will react slightly with water to release some heat and carbon dioxide. The reaction is not violent. Carbon dioxide, carbon monoxide and in high temperature (800° F) low oxygen atmospheres such as in fire situations, hydrogen cyanide may be released.

11. Toxicological Information

Chronic effects	Chronic exposure to solvents can cause reproductive problems, reduced fertility, dryness and cracking of skin, headaches, loss of appetite and nausea.
Carcinogenicity	If this product contains any carcinogens, they will be noted below: This product contains Methylene Diphenyl Isocyanate (MDI). MDI is not listed by the NTP, IARC or regulated by OSHA as a carcinogen. However, it has been shown to alter cells in certain experiments. Although inconclusive, these cellular changes are thought to indicate potential carcinogenicity.
Local effects	Single large does, and/or repeated exposures, may lead to sensitization to diisocyanates or polyisocyanates (asthma or asthma-like symptoms), causing an individual to experience adverse effects at exposure levels well below exposure limits or guidelines. Symptoms may include chest tightness, wheezing, shortness of breath, coughing or asthmatic attack, and may be delayed up to several hours. Extreme asthmatic reactions can be life threatening. Once sensitized, an individual may experience adverse symptoms upon exposure to dust, cold air or other irritants. Sensitization can last several months, years or be permanent in some cases. Chronic exposure may cause lung damage, including fibrosis and decreased lung function, which may be permanent.

12. Ecological Information

Ecotoxicological information	Organic solvents produce slight to moderate toxicity to aquatic life. Insufficient data exists to evaluate the effect on plants, birds or land animals.

13. Disposal Considerations

It is the obligation of each user of the product mentioned herein to determine and comply with the requirements of all applicable local, state and federal regulations.

Waste disposal	Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations. Wastes must be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes. Empty containers must be handled with care due to product residue. Do not heat or cut empty container with electric or gas torch.

14. Transport Information

DOT

Basic shipping requirements:	
Proper shipping name	Methyl Ethyl Ketone Solution
Hazard class	3
UN number	1193A
Packing group	II

IATA

Basic shipping requirements:	
Proper shipping name	Methyl Ethyl Ketone Solution
Hazard class	3
UN number	1193A
Packing group	II

IMDG

Basic shipping requirements:	
Proper shipping name	Methyl Ethyl Ketone Solution
Hazard class	3
UN number	1193A
Packing group	II

15. Regulatory Information

This MSDS is prepared and distributed pursuant to the Federal Hazard Communication Standard, 29 CFR 1910.1200

The product(s) covered by this M(SDS) do not include any of the 15 substances in the Candidate List of Substances of Very High Concern (SVHC) for authorization published by ECHA on October 28, 2008 or the list of 15 substances proposed on August 31, 2009 or the list of 14 substances proposed on January 13, 2010 above a concentration of 0.1% weight by weight (w/w).

Federal regulations All components are on the U.S. EPA TSCA Inventory List.

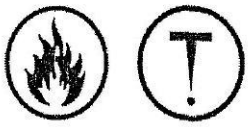
US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

Methylene Diphenyl Isocyanate (MDI)	101-68-8	METHYLENEBIS(PHENYLISOCYANATE) (MDI) US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance
Polymethylene Polyphenylene Isocyanate	9016-87-9	POLYMERIC DIPHENYLMETHANE DIISOCYANATE US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

State regulations If this product contains any ingredients listed under California Proposition 65, they will be noted below:

International regulations This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and contains all the information required by the Controlled Products Regulations. All components are included on the Canadian Domestic Substances List (DSL).

HMIS Ratings	Health: 2* Flammability: 3 Physical hazard: 2 Personal protection: X
SARA 311/312 HAZARD CATEGORIES	Immediate Hazard - Yes Delayed Hazard - No Fire Hazard - Yes Pressure Hazard - No Reactivity Hazard - Yes
WHMIS status	Controlled
WHMIS labeling	



WHMIS classification	B2 - Flammable/Combustible D2A - Other Toxic Effects-VERY TOXIC D2B - Other Toxic Effects-TOXIC

16. Other Information

Disclaimer	The data in this MSDS has been compiled from publicly available sources. This data relates only to the designated product and not to the use of said product in combination with other materials. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist. Responsibility for proper precautions and safe use of the product lies with the user. All data in this MSDS is typical of the product as a whole, and does not represent any individual lot or batch, therefore, Bostik, Inc. makes no warranty about the accuracy of the data herein and assumes no liability for the use of such data. It is the responsibility of the user to comply with all applicable federal, state, and local laws and regulations.
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Prepared by	David Priebe
Supercedes	08/01/2008
This data sheet contains changes from the previous version in section(s):	This document has undergone significant changes and should be reviewed in its entirety.