MATERIAL SAFETY DATA SHEET

SECTION I

DATE OF PREPARATION
June2011

PRODUCT NAME: **ICO Urea Guard, Part A**
PRODUCT TYPE: Aspartic ester blend
D.O.T. CATEGORY: Non-Regulated
HMIS RATING: Health 2, Flammability 1, Reactivity 0

ADDRESS: **International Coatings**
Div. of Milamar Coatings, L.L.C.
311 N.W. 122nd St. Suite 100
Oklahoma City, OK 73114
TELEPHONE: 405-755-8448
EMERGENCY: CHEM TEL 800-255-3924

SECTION II - HAZARDOUS INGREDIENTS

Ingredient	Cas #	Maximum Content	Exposure Limits
Aspartic Ester	trade secret	80%	Not Established
Aliphatic Carboxylic Ester	623-91-6	6%	Not Established
Monoaspartate	unavailable	15%	Not Established
1-methoxy 2-acetoxypropane	108-65-6	35%	100ppm TWA

SECTION III - PHYSICAL DATA

PHYSICAL STATE: Low Viscosity, amber color
SPECIFIC GRAVITY: 1.03 at 77°F
DENSITY: 8.6 lbs./gal at 77°F
ODOR: Sharp, ether odor
VAPOR PRESSURE: 3.7 mm Hg @ 68°F
PERCENT VOLATILES: 30% at 70°F

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 100°F (Setaflash Closed Cup)
LFL: 1.5 vol.% @ 200°C
UFL: 7.0 vol.% @ 200°C
EXTINGUISHING MEDIA: CO_2, Dry Chemical
SPECIAL FIRE FIGHTING PROCEDURES: Keep people away. Isolate fire area and deny unnecessary entry. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Burning liquids may be extinguished by dilution with water. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reigniting has passed. Do not use direct water stream. May spread fire. Eliminate ignition sources. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. During a fire, irritating and/or toxic gases and smoke may be present from decomposition/combustion. Ammonia may be released during a fire situation in the presence of air.

SECTION V – HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVELS None established
EFFECTS OF OVER EXPOSURE
INHALATION May cause respiratory irritation or central nervous system depression.
EYES Eye contact may cause irritation.
SKIN May be moderately irritating to the skin. Repeated contact may cause sensitization and/or dermatitis.

FIRST AID
EYES Flush with water for at least 15 minutes. **GET MEDICAL ATTENTION**
SKIN Wash thoroughly with water. Remove contaminated clothing and shoes. Wash clothing before re-use. Get medical attention if effects such as swelling or reddening occur.
INHALATION Remove to fresh air if effects occur and administer oxygen if necessary. **GET MEDICAL ATTENTION.**
INGESTION **GET MEDICAL ATTENTION IMMEDIATELY** Do not induce vomiting unless directed by physician.

SECTION VI - REACTIVITY DATA

STABILITY: Stable under normal storage conditions.
INCOMPATIBILITY: Avoid bringing into contact with strong oxidizing agents.
HAZARDOUS DECOMPOSITION PRODUCTS:
CO (Carbon Monoxide) CO_2 (Carbon Dioxide)
Irritating vapors, toxic gases, ammonia oxides of nitrogen, amines

SECTION VII - SPILL OR LEAK PROCEDURE

STEPS TO TAKE IF SPILLED: Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. For large spills, warn public downwind explosion hazard. Check area with explosion meter before reentering area. Ground and bond all containers and handling equipment. Use spark proof shovels. Equip cleanup crew with appropriate protective equipment. Don't allow material to leak into fresh water supply, ground water, or sewers.
WASTE DISPOSAL: If product, is disposed as shipped. Consult state or local officials for proper disposal method.

SECTION VIII - SPECIAL PRECAUTION INFORMATION

VENTILATION REQUIREMENTS: Local; Use organic vapor cartridge respirator if respiratory irritation of dizziness occurs.

PERSONAL PROTECTIVE EQUIPMENT RECOMMENDED FOR NORMAL USE CONDITIONS:
EYE PROTECTION: Chemical goggles.
SKIN PROTECTION: Rubber or plastic gloves.
RESPIRATORY PROTECTION: Respirator with organic vapor cartridge N/A with local exhaust.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
Keep container tightly closed when not in use. Store in a dry location. Ground metal drums when dispensing.

THE INFORMATION HEREIN RELATES TO THE PRODUCT NAMED AND IS BASED UPON INFORMATION INTERNATIONAL COATINGS CONSIDERS TO BE ACCURATE. NO WARRANTY EXPRESSED OR IMPLIED IS INTENDED.

MATERIAL SAFETY DATA SHEET

SECTION I

DATE OF PREPARATION
October 2011

PRODUCT NAME: **ICO Urea Guard Clear, Part B**

PRODUCT TYPE: Aliphatic polyisocyanate

D.O.T. CATEGORY: UN 3082 Environmentally Hazardous Substances, liquid, N.O.S. (Homopolymer of Hexamethylene Diisocyanate) 9 PG III

ADDRESS: **International Coatings**
Div. of Milamar Coatings, L.L.C.
311 N.W. 122nd St. Suite 100
Oklahoma City, OK 73114

TELEPHONE: 405-755-8448

EMERGENCY: CHEM TEL 800-255-3924

SECTION II - HAZARDOUS INGREDIENTS

NFPA RATINGS: Health – 2, Flammability – 1, Reactivity - 1

Homopolymer of HDI 28182-81-2 >95% OSHA : Not Established ACGIH : Not Established

The recommended Manufacturer Guideline Level (MGL) for HDI based Polyisocyanates is: 0.5 mg/m3 (TWA - averaged over 8 hours) and 1.0 mg/m3 Short Term Exposure (STEL - averaged over 15 minutes)

Hexamethylene Diisocyanate (HDI)
822-06-0 >0.3% OSHA : Not Established ACGIH : .005 ppm TWA

*Monomer content is less than 0.2% based on resin solids at the time of manufacture. ICO also recommends a ceiling level of 0.02 ppm (Manufacturer Guideline Level (MGL).

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Physical Form:	Liquid
Color:	Clear/Pale Yellow
Odor:	Negligible
Molecular Weight:	Approx. 500 (polyisocyanate)
Boiling Point:	382°F (194°C)
Melting/Freezing Point:	Not Established
Solubility in Water:	Resin is insoluble - reacts slowly with water to liberate CO_2 gas.
Specific Gravity:	1.14 @ 68°F (20°C)
Bulk Density:	9.5 lbs/gal
Vapor Pressure:	Polyisocyanate: Approx. 7.5 x 10 - 5 mmHg @ 20

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: Greater than 200°F (93°C)

EXTINGUISHING MEDIA: Dry Chemical: Carbon Dioxide; Foam; Water spray for large fires.

SPECIAL FIRE FIGHTING PROCEDURES:
Full emergency equipment with self-contained breathing apparatus and full protective clothing should be worn by firefighters. During a fire, HDI vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion (See Section 10). Closed container may explode when exposed to extreme heat or burst when contaminated with water (CO_2 evolved).

SECTION V - REACTIVITY DATA

STABILITY: Stable under normal conditions

HAZARDOUS POLYMERIZATION: May occur; Contact with moisture or other materials which react with isocyanates or temperatures above 400°F (204°C) may cause polymerization.

INCOMPATIBILITIES: Water, amines, strong bases, alcohols, metal compounds and surface active materials.

INSTABILITY CONDITIONS: None known to ICO

DECOMPOSITION PRODUCTS: By high heat and fire: carbon dioxide, carbon monoxide, oxides of nitrogen, HCN, HDI.

SECTION VI - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:

ACUTE: TLV or MGL can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperactivity can respond to concentrations below the TLV can respond to concentrations below the TLV or MGL with similar symptoms as well as an asthma attack. Exposure well above the TLV or MGL may lead to bronchitis, bronchial spasm and pulmonary edema hypersensitive pneumonitis, with flu-like symptoms (e.g., fever, chills) has also been reported.

CHRONIC: As a result of previous repeated over exposures or a single large dose, certain individuals will develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the TLV or MGL. These breath or asthmatic attack, could be immediate or delayed up to several hours after exposure. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Chronic overexposure to isocyanate has also been reported to cause lung damage, including decrease in lung function, which may be permanent. Sensitization may be either temporary or permanent.
SKIN: Isocyanate react with skin protein and moisture and can cause irritation. Symptoms of skin irritation may be reddening, swelling, rash, scaling or blistering. Some persons may develop skin sensitization from skin contact. Cured material is difficult to remove. Prolonged contact with the isocyanate can cause reddening, swelling, rash, scaling, or blistering. In those who have developed a skin sensitization, these symptoms can develop as a result of contact with very small amounts of liquid material or even as a result of vapor-only exposure.
ACUTE EYE CONTACT: Liquid, aerosol and vapors of this product are irritating and can cause pain, tearing, reddening and swelling accompanied by a stinging sensation and/or a feeling like that of fine dust in the eyes.
CHRONIC EYE CONTACT: May result in corneal opacity (clouding of the eye surface).
ACUTE INGESTION: Can result in irritation and possible corrosive action in the mouth, stomach tissue and digestive tract.
CARCINOGENICITY: NTP, Not listed, IARC: Not listed, OSHA: Not regulated.
MEDICAL CONDITIONS: AGGRAVATED BY EXPOSURE: Asthma and other respiratory disorders (bronchitis, emphysema, hyperactivity,), skin allergies, eczema.
EXPOSURE LIMITS: Not established for product as a whole. Refer to section 2 for exposure limits of hazardous constituents. The Manufacturer Guideline Level of 0.5 mg/m3 - STEL for guides based on limited data; they are provided as guides pending the review of future data.
EMERGENCY AND FIRST AID PROCEDURES:
EYES: Flush with clean, lukewarm water (low pressure) for at least 15 minutes, while lifting eyelids. Refer individual to physician or ophthalmologist for immediate follow-up.
SKIN: Remove contaminated clothing immediately. Wash affected areas thoroughly with soap and water. Wash contaminated clothing thoroughly before reuse. For severe exposures, get under safety shower after removing clothing, then get medical attention. For lesser exposures, seek medical attention if irritation develops or persists.
IINHALATION: Move to an area free from risk of further exposure. Administer oxygen or artificial respiration as needed. Obtain medical attention. Asthmatic-type symptoms may develop and may be immediate or delayed up to several hours. Treatment is essentially symptomatic. Consult physician.
INGESTION: DO NOT INDUCE VOMITING Give 1 to 2 cups of milk or water to drink. Do not give anything by mouth to an unconscious or convulsing person. Consult physician.
NOTE TO PHYSICIAN: Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation frequently. Workplace vapors could produce reversible corneal epithelial edema impairing vision. Skin: This product is known skin sensitizer. Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of the product. Inhalation: This product is a known pulmonary sensitizer. Treatment is sensitization reaction to this material must be removed from any further exposure to any isocyanate.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

SPILL OR LEAK PROCEDURES: Evacuate nonessential personnel. Remove all sources of ignition and ventilate the area. Notify appropriate authorities if necessary. Put on personal protective equipment (see Section 8). Dike or impound spilled material and control further spillage if feasible. Cover spill with sawdust, vermiculite, Fuller's earth or other absorbent material. Pour decontamination solution over spill area and allow to react for at least 10 minutes. Collect material in open containers and add further amounts of decontamination solution. Remove containers to a safe place, cover loosely, and allow to stand for 24 to 48 hours. Wash down spill area with decontamination solutions. Decontamination solutions: nonionic surfactant Union Carbide's Tergitol TMN-10 (20%) and water (80%): concentrated ammonia (3-8%), detergent (2%) and water (90-95%).
STORAGE TEMPERATURE (MIN/MAX): -30°F (-34°C) /122°F (50°C)
SHELF LIFE: 6 months at 77°F (25°C) after receipt of material by customer.
SPECIAL SENSITIVITY: If container is exposed to high heat, it can be pressurized and possibly rupture explosively. HDI reacts slowly with water to form CO_2 gas. This gas can cause sealed containers to expand and possibly rupture explosively.
HANDLING/STORAGE PRECAUTIONS: Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected. At maximum storage temperatures noted, material may slowly polymerize without hazard. Ideal storage temperature range for ease of handling is 50-81°F (10-27°C). Avoid contact with skin and eyes. Employee education and training in the safe use and handling of this product are required under the OSHA Hazard Communication Standard.
WASTE DISPOSAL METHOD: Waste must be disposed of in accordance with federal, state and local environmental control regulations. Incineration is the preferred method. Empty containers must be handled with care due to product residue. Decontaminate containers prior to disposal. **Do Not Heat or Cut Empty Container With Electric or Gas Torch.**(See Section 5 and a10).

SECTION VIII - PERSONAL PROTECTION

REQUIRED WORK/HYGIENE PROCEDURES: Precautions must be taken so that persons handling this product do not allow contact with the eyes or skin. In spray operations, protection must be afforded against exposure to both vapor and spray mist.
SKIN PROTECTION REQUIREMENTS: Permeation resistant gloves. Cover as much of the exposed skin area as possible with appropriate clothing. If skin creams are used, keep the area protected only by the cream to a minimum.
VENTILATION REQUIREMENTS: Good industrial hygiene practice dictates that worker protection should be achieved through engineering controls, feasible to achieve full protection, the use of respirators and other personal protective equipment is mandated (See Respirator Requirements below). Exhaust air may need to be cleaned by scrubbers or filters to reduce environmental contamination. Curing ovens must be ventilated to prevent emissions into the workplace. If oven off-gases are not vented properly (i.e. they are released into the work area), it is possible to be exposed to airborne monomeric HDI.
RESPIRATOR REQUIREMENTS A respirator that is recommended or approved for use in isocyanate-containing environments (air-purifying or fresh air-supplied) may be necessary for spray applications or other situations such as high temperature use which may produce inhalation exposures. A supplied -air respirator (either positive pressure or continuous flow-type) is recommended. Before an air-purifying respirator can be used, air monitoring must be performed to measure airborne concentrations of HDI monomer and HDI polyisocyanate. Specific conditions under which air-purifying respirators can be used are outlined in the following sections. Observe OSHA regulations for respirator use (29 CFR 1910.134).
SPRAY APPLICATION: A good industrial hygiene practice dictates that when isocyanate-based coatings are spray applied, some from of respiratory protection should be worn. During the spray application of coatings containing this product, the use of a supplied-air (either positive pressure or continuous flow-type) respirator is mandatory when **ONE** or **MORE** of the following conditions exists:
- the airborne isocyanate concentrations are not known; or
- the airborne isocyanate monomer concentrations exceed 0.05 ppm averaged over eight (8) hours (10 times the 8hour TWA exposure limit); or
- operation sare performed in a confined space (See OSHA Confined Space Standard, 29 CFR 1910.146).

A properly fitted air-purifying (combination organic vapor and particulate) respirator, proven by test to be effective in isocyanate-containing spray paint environments, and used in accordance with all recommendations made by the manufacturer, can be used when **ALL** of the following conditions are met:
- the airborne isocyanate monomer concentrations are known to be below 0.05 ppm averaged over eight (8) hours (10 times 8 hour TWA exposure limit); and
- the airborne polyisocyanate (polymeric, oligomeric) concentrations are known to be below 5 mg/m3 averaged over 8 hours or 10 mg/m3 averaged over 15 minutes (10 times the 8 hour TWA or the 15 minute STEL exposure limits and
- a NIOSH-certified End of Service Life Indicator or a change schedule based upon objective information or data is used to ensure that cartridges are replaced before the end of their service life. In addition, prefilters should be changed whenever breathing resistance increases due to particulate buildup.
NON-SPRAY OPERATIONS: During non-spray operations such as mixing, batch-making, brush or roller application, etc., at elevated temperatures (for example, heating of material or application to a hot substrate), it is possible to be exposed to airborne isocyanate vapors. Therefore, when the coatings system will be applied in a non-spray manner, a supplied-air (either positive pressure or continuous flow-type) respirator is mandatory when **ONE** or **MORE** of the following conditions exists:
- the airborne isocyanate concentrations are not known; or
- the airborne isocyanate monomer concentrations exceed 0.05 ppm averaged over eight (8) hours (10 times the 8 hour TWA exposure limit); or
- the airborne polyisocyanate (polymeric, oligomeric) concentrations exceed 5 mg/m3 averaged over 8 hours or 10 mg/m3 averaged over 15 minutes (10 times the 8 hour TWA or the 15 minute STEL exposure limits); or
-operations are performed in a confined space (see OSHA Confined Space Standard, 29 CFR 1910.146).

A properly fitted air-purifying (combination organic vapor and particulate respirator, proven by test to be effective in isocyante-containing paint environments, and used in accordance with all recommendations made by the manufacturer, can be used when **ALL** of the following conditions are met:
- the airborne concentrations of the isocyanate monomer are below 0.05 ppm averaged over eight (8) hours (10 times the 8 hour TWA exposure limit); and
- the airborne polysiocyanate (polymeric, oligomeric) concentrations are known to be below 5 mg/m3 averaged over eight (8) hours or 10 mg/m3 averaged over 15 minutes (10 times the 8 hour TWA or the 15 minutes STEL exposure limits) and
- a NIOSH-certified End of Service Life Indicator or a change schedule based upon objective information or data is used to ensure that cartridges are replaced before the end of their service life. In addition, prefilters should be changed whenever breathing resistance increases due to particulate buildup.
MONITORING: Refer to Patty's Industrial Hygiene and Toxicology-Volume 1 (3rd edition) Chapter 17 and volume III (1st edition) Chapter 3-for guidance concerning appropriate air sampling strategy to determined airborne concentrations of isocyanates and solvent.

MEDICAL SURVEILLANCE: Medical supervision of all employees who handle or come in contact with this product is recommended. This should include pre-employment and periodic medical examinations with respiratory function tests (FEV, FVC as a minimum). Persons with asthma-type recurrent skin eczema or sensitization should be excluded from working with no further exposure can be permitted.

ADDITIONAL PROTECTIVE MEASURES: Safety showers and eyewash station should be available. Educate and train employees in safe use of product. Follow and Safety Information for Hexamethylene Diisocyanate Based Polyisocyanates".

SECTION IX - DISCLAIMER

DISCLAIMER:

The information contained herein is based on the data available to us and is believed to be accurate. However, International Coatings, Inc., makes no warranty expressed or implied regarding the accuracy of this data or the results obtained from the use thereof. International Coatings, Inc., assumes no responsibilities for injury from the use of this product.

SECTION X - TRANSPORTATION

DOT PROPER SHIPPING NAME:	Environmentally Hazardous Substances, liquid, N.O.S. (Homopolymer of Hexamethylene Diisocyanate)
DOT HAZARD CLASSIFICATION OR DIVISION:	9
IDENTIFICATION NUMBER:	UN 3082
PACKAGING GROUP:	III
LABELS REQUIRED:	None

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