SAFETY DATA SHEET
U.S. Department of Labor
Occupational Safety & Health Administration

Polagard AG - Part A

SECTION 1 - IDENTIFICATION

MANUFACTURER:	Andek Corporation
ADDRESS:	850 Glen Avenue, Moorestown, NJ 08057
TELEPHONE:	1-856-786-6900
	In an emergency, contact CHEMTREC 1-800- 424-9300;
	Outside the United States call +1-703-527-3887
PRODUCT IDENTIFIER:	Polagard AG - Part A
RECOMMENDED USE:	Anti-Graffiti Coating

SECTION 2 – HAZARD IDENTIFICATION

HAZARD CLASSIFICATION:
Skin: Irritant

Eyes: Reversible

Inhalation: Low to moderate sensitivity. May cause sensitization.

Ingestion: **Do Not** ingest.

SIGNAL WORD: Danger

HAZARD STATEMENTS:

- Contains hexamethylene diisocyanate (HDI).
- Causes skin irritation.
- May cause allergic skin reaction.
- May cause allergic respiratory reaction.
- May cause eye irritation.
- May be harmful if aerosol or mist is inhaled.
- May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- Closed containers may explode under extreme heat or when contaminated with water.
- Use cold water spray to cool fire-exposed containers to minimize the risk of rupture. Toxic gases / fumes are given off during burning or thermal decomposition.
- **Do Not** seal containers that have been contaminated with water.
- Flammable liquid and vapor.

PICTOGRAMS:

PRECAUTIONARY STATEMENTS:

Prevention:

- **Do Not** handle until all safety precautions have been read and understood.
- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- Keep container tightly closed.
- Ground/bond container and receiving equipment.
- Protect from moisture.
- **Do Not** spray on an open flame or other ignition source.
- Use explosion-proof electrical/ventilating/light/equipment.
- Take precautionary measures against static discharge.
- Avoid breathing spray.
- **Do Not** get in eyes, on skin, or on clothing.
- Wear protective gloves/protective clothing/eye protection/face protection.

Response:

- Wash contaminated clothing before reuse.
- Rinse skin with water/shower.
- In case of fire use water fog, Carbon Dioxide, foam or dry chemical to extinguish.
- Rinse mouth. **Do Not** induce vomiting.
- If in eyes: Rinse cautiously with water for 15 minutes. Remove contact lenses if present and easy to do. Continue rinsing.
- If inhaled; remove person to fresh air and keep comfortable for breathing.

Storage:

- Store in a well ventilated place.
- Keep container tightly closed.

Disposal:

- Waste disposal should be in accordance with existing federal, state and local environmental control laws.
- Incineration is the preferred method.

SECTION 3 – COMPOSITION

CHEMICAL NAME	CAS #	APPROX %
n-Butyl Acetate	123-86-4	15
Xylene	1330-20-7	7
Ethyl Benzene	100-41-4	3
Hexamethylene-1,6-Di-isocyanate	822-06-0	>1
Homopolymer of Hexamethylene Diisocyanate	28182-81-2	75

SECTION 4 – FIRST AID MEASURES

Skin:

- For skin contact, wipe away excess material with dry towel. Then wash affected areas with plenty of water, and soap if available, for several minutes.
- Get medical attention if irritation occurs.
- Remove contaminated clothing and launder before reuse.
- Remove contaminated shoes and discard.

Eyes:

- In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention.

Inhalation:

- If inhaled, remove to fresh air.
- If not breathing give artificial respiration, preferably mouth-to-mouth.
- If breathing is difficult oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Ingestion:

- If swallowed, give 1-2 glasses of water, but **Do Not** induce vomiting.
- **Do Not** give anything by mouth to an unconscious or convulsing person.
- Get medical attention.

SECTION 5 – FIRE-FIGHTING MEASURES

Flash point (METHOD USED): 92°F. Closed Cup (ASTM D50).

Flammable limits: Lel 0.9; Uel 6.0.

Extinguishing media: Carbon dioxide, dry chemical, foam

Special fire fighting procedures: If excessive fumes or smoke is encountered, wear self-contained breathing apparatus and full protective equipment.

Unusual fire & explosion hazards: Sealed containers may build up pressure if exposed to heat (fire). Water can be used to cool the exterior of the containers.

Decomposition products: Oxides of carbon and nitrogen, possible HCN and polyurethane combustion compounds.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures:

- Wear appropriate protective equipment (See Section 8).

Environmental Precautions:

- Prevent from entering sewers, waterways or low areas.
- Prevent contamination of soil.

Spill Procedures:

- Remove all sources of ignition and ventilate the area.
- Vapors are much heavier than air and as such will accumulate in low-lying areas, presenting a hazard to anyone entering such places. Low-lying areas should be ventilated and checked before permitting access.
- Soak up residue with an absorbent such as clay or sand. Place in a non-leaking container for proper disposal according to federal, state, and local regulations.
- Clean up spill area with a decontamination solution made up of 50% isopropyl alcohol, 45% water, and 5% concentrated ammonia solution. Solution should cover the area for at least an hour.
- Allow for ventilation of containers with spill cleanup as CO^2 generation will occur with clean up solution.

SECTION 7 – HANDLING & STORAGE

Precautions for safe handling:

- Wear appropriate protective equipment. See Section 8 for normal handling recommendations.
- Avoid contact with eyes, skin, and clothing.
- Use in well ventilated area.
- Ground and bond containers before transferring liquid.

Recommendations on the conditions for safe storage:

- Flammable Storage.
- Keep containers tightly closed.
- Store in a cool dry place.
- Ground equipment to prevent static build-up.
- Ground containers when pouring or transferring.

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limits:

CHEMICAL NAME	PEL	TLV (8 Hours)	STEL
Homopolymer of Hexamethylene Diisocyanate	0.5 mg/m³	N/A	1.0 mg/m³ (15-min)
n-Butyl Acetate	150 ppm, 710 mg/m³	150 ppm	200 ppm
Xylene	100 ppm, 435 mg/m³	100 ppm	150 ppm
Ethyl Benzene	100 ppm, 435 mg/m³	20 ppm	125 ppm
Hexamethylene-1,6-Diisocyanate	N/A	0.005ppm	N/A

Engineering controls:

- Use local exhaust ventilation to assure that isophorone diisocyanate levels in the air are below established exposure limits.

Individual protection measures:

- Use Viton or 4H gloves.
- Long sleeved clothing and Apron.

Inhalation protection:

- In operations where the exposure limits can be exceeded, wear a NIOSH approved respirator selected by a technically qualified person.
- If a respirator is worn, OSHA requires compliance with its respiratory protection program (29 CFR 1910.134).

Eye protection:

- Safety glasses (with side shields).

Other hygienic practices and protective equipment:

- Use proper ventilation.
- Follow good industrial chemical hygiene practices.
- Safety showers and eyewash stations should be available.

- Educate and train employees in safe use of product.
- Remove clothing or shoes that have become wet with this product. Launder clothing before reuse.
- Decontaminate or discard shoes.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear Liquid
Physical state: Liquid
Color: Transparent to slightly amber
Odor: Fruit-like solvent
Odor threshold: None Established
pH: N/A
Melting point/freezing point: None Established
Initial boiling point and boiling range: 257ºF to 261ºF
Flash point: 92ºF
Evaporation rate: 0.2 (Butyl Acetate = 1)
Flammability (solid, gas) Flammable
Upper/lower flammability or explosive limits: 7.6% (V) / 0.8% (V)
Vapor pressure: 7-10 mm Hg @20ºC
Vapor density: 4 (Air = 1)
Relative density: 1.06 gm / cm^3 at 60ºF
Solubility: Insoluble; will react with water to form CO^2
Partition coefficient: n-octanol/water: N/A
Auto-ignition temperature: 752ºF
Decomposition temperature: N/A
Viscosity: 100 centipoises at 20ºC

SECTION 10 – STABILITY AND REACTIVITY

Chemical Stability:

- Stable under normal conditions of handling, use and transportation.

Hazardous Polymerization:

- Will not occur under normal conditions.
- Avoid contact with water or moisture.
- Polymerization will occur releasing CO^2.
- Pressure buildup in closed container may occur.

Conditions to Avoid:

- Avoid contact with heat, sparks, open flame, and static discharge.

Materials to Avoid:

- Avoid contact with Moisture and water as polymerization will occur to release CO^2 which may pressurize non-vented containers.
- Avoid contact with alcohols, amines, acids, strong oxidizing agents and strong bases.

Hazardous Decomposition Products:

- Combustion of the dried polymer may release: Carbon dioxide, carbon monoxide, oxides of nitrogen and traces of HCN.

Additional Guidelines: Not Applicable.

SECTION 11 – TOXICOLOGICAL INFORMATION

Acute Toxicity:

CHEMICAL NAME	Oral LD50	Dermal LD50	Inhalation
Homopolymer of Hexamethylene Diisocyanate	>5,000 mg/kg (Rat) Estimated Value	> 5,000 mg/kg (rabbit)	LC50: 390-453 mg/m³, 4 h (Rat, Male/Female) RD50: 20.8 mg/m³, 3 h
n-Butyl Acetate	> 5,000 mg/kg (Rat, Female)	> 5,000 mg/kg (rabbit, male)	LC50: > 29.2 mg/l, 4 h (Rat) (OECD Test Guideline 403) LC50: > 23.4 mg/l, 4 h (Rat)
Xylene	4,300 mg/kg (Rat)	> 4,350 mg/kg (rabbit)	LC50: 5,000 ppm, 4 h (Rat)
Ethyl Benzene	ca. 3,500 mg/kg (rat)	17,800 mg/kg (rabbit)	LC50: 17.2 mg/l, 4 h (Rat)

Irritation and Sensitization:

CHEMICAL NAME	Skin Irritation	Eye Irritation	Sensitization
Homopolymer of Hexamethylene Diisocyanate	Rabbit, Draize, Slightly irritating	Rabbit, Draize, Slightly irritating	dermal: sensitizer (Guinea pig, Maximization Test) dermal: non-sensitizer (Guinea pig, Buehler) inhalation: non-sensitizer (Guinea pig)
n-Butyl Acetate	Human experience, Non-irritating	Human, irritating	dermal: non-sensitizer (Guinea pig, Maximization Test) dermal: non-sensitizer (Human, Magnusson/Kligmann (Maximization Test))
Xylene	rabbit, Exposure Time: 24 h, irritating	Human, Corrosive	N/A
Ethyl Benzene	Draize, Mild skin irritation	rabbit, Draize, Severely irritating	dermal: non-sensitizer (Human, Patch Test)

Mutagenicity/ Carcinogenicity:

CHEMICAL NAME	Mutagenicity	Carcinogenicity
Homopolymer of Hexamethylene Diisocyanate	Genetic Toxicity in Vitro: Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)	N/A
n-Butyl Acetate	Genetic Toxicity in Vitro: Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without) Cytogenetic assay: negative (other mammalian cell line, Metabolic Activation: without) Chromosome aberration test: negative (Chinese hamster lung cells, Metabolic Activation: without)	N/A
Xylene	Genetic Toxicity in Vitro: Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without) Chromosome aberration test: negative (Chinese hamster ovary (CHO) cells, Metabolic Activation: with/without) Sister Chromatid Exchange: negative (Chinese hamster ovary (CHO) cells, Metabolic Activation: with/without)	Rat, Male/Female, oral, 103 Weeks, negative mouse, Male/Female, oral, 2 Years, negative
Ethyl Benzene	Genetic Toxicity in Vitro: Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without) Positive and negative results were seen in various in vitro studies. Mammalian cell - gene mutation assay: negative (Mouse lymphoma cells (L5178Y/TK), Metabolic Activation: with/without) Positive and negative results were seen in various in vitro studies. Genetic Toxicity in Vivo: Drosophila SLRL test: (Drosophila melanogaster) negative Micronucleus Assay: (mouse, Male/Female, inhalation) negative	Ethylene benzene was tested by inhalation exposure in mice and rats. In mice, there was an increased incidence of lung adenomas in males and liver adenomas in females. In male rats, there was an increased incidence of renal tubule adenomas and carcinomas. Two studies of workers potentially exposed to ethylbenzene in a production plant and a styrene polymerization plant showed no excess cancer incidence and no excess cancer mortality during a 15-year follow-up.

Developmental/Teratogenicity:

CHEMICAL NAME	Developmental/ Teratogenicity/Reproductive/Fertility
Homopolymer of Hexamethylene Diisocyanate	N/A
n-Butyl Acetate	**Developmental/ Teratogenicity:** Rat, Female, inhalation, gestation days 1-16, 7 hrs/day, NOAEL (teratogenicity): 1,500 ppm, No Teratogenic effects observed at doses tested. Rabbit, female, inhalation, gestation days 1-19, 7 hrs/day, NOAEL (teratogenicity): 1500 ppm, No Teratogenic effects observed at doses tested
Xylene	**Developmental/ Teratogenicity:** Rat, female, inhalation, gestation days 9-14, 24 hrs/day, NOAEL (teratogenicity): > 230 ppm, NOAEL (maternal): 230 ppm No Teratogenic effects observed at doses tested
Ethyl Benzene	**Reproductive/Fertility:** Other method, inhalation, (Monkey, male); Reproductive effects have been observed in animal studies. One generation study, inhalation, (Rat, female) NOAEL (parental): 100 ppm, NOAEL (F2): 100 ppm **Developmental/ Teratogenicity**: Rat, female, inhalation, gestation, daily, NOAEL (teratogenicity): 100 ppm, NOAEL (maternal): 100 ppm Teratogenic effects seen only with maternal toxicity. Fetotoxicity seen only with maternal toxicity. Rabbit, female, inhalation, gestation, daily, NOAEL (teratogenicity): < 1000 mg/m3, NOAEL (maternal): < 1000 mg/m3 Teratogenic effects seen only with maternal toxicity., Fetotoxicity seen only with maternal toxicity

Other Toxicity Information:

CHEMICAL NAME	REPEATED DOSE	OTHER RELEVANT INFORMATION
Homopolymer of Hexamethylene Diisocyanate	3 wks, inhalation: NOAEL: 3.7 - 4.3 mg/m³, (Rat) 90 d, inhalation: NOAEL: 3.3 - 3.4 mg/m³, (Rat) Irritation to lungs and nasal cavity.	N/A
n-Butyl Acetate	13 Weeks, inhalation: NOAEL: 500 ppm, (Rat,) Chronic exposure damages the brain and the central nervous system.	May cause drowsiness or dizziness
Xylene	90 Ds, inhalation: NOAEL: 810 ppm, (Rat) There were no adverse effects seen at highest dose tested. 90 Ds, oral: LOAEL: 150 mg/kg, (Rat) There were no adverse effects seen at highest dose tested. Chronic exposure damages the brain and the central nervous system	May cause drowsiness or dizziness if inhaled. May cause irritation of respiratory tract
Ethyl Benzene	28 Days, inhalation: NOAEL: 3.4 mg/l, (rabbit,) 90 Days, inhalation: NOAEL: 0.47 mg/l, (Rat, Male/Female, daily)	May cause irritation of respiratory tract. May be fatal if swallowed and enters airways.

SECTION 12 – ECOLOGICAL INFORMATION

Data from toxicity test:

CHEMICAL NAME	Algae/Aquatic Plants EC50	Fish LC50	Microorganisms EC50	Crustacea (Aquatic Invertebrates) EC50
Homopolymer of Hexamethylene Diisocyanate	> 1,000 mg/l, (Green algae (Scenedesmus subspicatus), 72 h)	LC0: > 100 mg/l (Zebra fish (Brachydanio rerio), 96 h)	> 1,000 mg/l, (Activated sludge microorganisms, 3 h)	LC0: > 100 mg/l (Water flea (Daphnia magna), 48 h)
n-Butyl Acetate	670 mg/l, End Point: growth (Crytomonas (Chilomonas paramecium), 48 h) 674.7 mg/l, End Point: growth (Green algae (Scenedesmus subspicatus), 72 h)	18 mg/l (Fathead minnow (Pimephales promelas), 96 h) 185 mg/l (Silverside Minnow (Menidia peninsulae), 96 h)	959 mg/l, (Pseudomonas putida, 18 h)	72.8 mg/l (Water flea (Daphnia magna), 48 h) 32 mg/l (brine shrimp (Artemia salina), 48 h)
Xylene	10 mg/l, End Point: growth (other: algae, 72 h)	13.5 - 17.3 mg/l (Rainbow Donaldson Trout (Oncorhynchus mykiss), 96 h)	N/A	600 ug/L (Gammarus sp., 48 h)
Ethyl Benzene	4.6 mg/l, (Green algae (Selenastrum capricornutum), 72 h)	4.2 mg/l (Rainbow Donaldson Trout (Oncorhynchus mykiss), 96 h) 12.1 mg/l (Fathead minnow (Pimephales promelas), 96 h) 4.3 mg/l (Hybrid striped bass (Morone saxatilis x chrysops), 96 h)	130 mg/l, (Activated sludge microorganisms, 48 h) 9.68 ppm, (Photobacterium phosphoreum, 30 in)	1.8 - 2.9 mg/l (Water flea (Daphnia magna), 48 h)

Biodegradation/Bioaccumulation/BOD/COD/ThBOD:

CHEMICAL NAME	Biodegradation	Bioaccumulation	Biochemical Oxygen Demand (BOD)	Chemical Oxygen Demand (COD)	Theoretical Biological Oxygen Demand (ThBOD)
Homopolymer of Hexamethylene Diisocyanate	0 %, Exposure time: 28 Days, Not readily biodegradable	N/A	N/A	N/A	N/A
n-Butyl Acetate	aerobic, 98 %, Exposure time: 28 Days	ca. 4 - 14 BCF	1,020 mg/g	2,320 mg/g	2,207 mg/g
Xylene	N/A	N/A	5 Days, 80 %	83 mg/g	N/A
Ethyl Benzene	Aerobic, 50 %, Exposure time: 28 Days	Cyprinus carpio (Carp), 15 BCF	5 Days, 2.8 % 35 Days, 1,780 mg/g	N/A	3.17 mg/g

SECTION 13 – DISPOSAL CONSIDERATIONS

Other Disposal Considerations:
Do Not dump into any sewers, on the ground or into any body of water.

Contaminated Packaging:
Empty drums may contain harmful vapors and residue. If empty container retains product residues, all label precautions must be observed. Transport with all closures in place. Dispose according to national or local regulations. Empty containers may contain explosive vapors. Keep from spark, flame, and heat sources. **Do Not** Cut or Weld.

RCRA Status: (Classification applies to the product as sold.)
D001 (Ignitable) D003 (Reactive)

SECTION 14 – TRANSPORT INFORMATION

UN #	1866
UN proper shipping name:	Resin Solution
Hazard class:	3
Packing group:	III
Environmental hazards:	N/A
Guidance on transport in bulk:	N/A

Transport labels required: Flammable liquid (In the U.S., this material may be re-classified as a combustible liquid and is not regulated in containers less than 119 gallons via surface transportation.)

SECTION 15 – REGULATORY INFORMATION

United States Federal Regulations

OSHA Hazcom Standard Rating: Hazardous

US Toxic Substances Control Act: Listed on the TSCA Inventory.

US EPA CERCLA Hazardous Substances (40 CFR 302):

COMPONENTS	Reportable quantity
n-Butyl Acetate	5000 lbs
Xylene	100 lbs
Ethyl Benzene	1000 lbs

SARA Section 311/312 Hazard Categories: Acute Health Hazard, Chronic Health Hazard, Fire Hazard

US EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substances (40 CFR 355, Appendix A):
Components: None

US EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required:
Components: Xylene and Ethyl Benzene

US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261)

Under RCRA, it is the responsibility of the person who generates a solid waste, as defined in 40 CFR 261.2, to determine if that waste is a hazardous waste. In its purchased form, this product meets the criteria of ignitability under 40 CFR 261.21(a), and, when discarded in that form, should be managed as a hazardous waste.

State Right-To-Know Information

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

COMPONENTS	CAS #	WEIGHT %
Homopolymer of Hexamethylene Diisocyanate	28182-81-2	60 - 100%
n-Butyl Acetate	123-86-4	10 - 20%
Xylene	1330-20-7	7 - 13%
Ethyl Benzene	100-41-4	1 - 5%
Hexamethylene-1,6-Diisocyanate	822-06-0	0.1 - 1%

New Jersey Environmental Hazardous Substances List and/or New Jersey RTK Special Hazardous Substances Lists:

COMPONENTS	CAS #	WEIGHT %
n-Butyl Acetate	123-86-4	10 - 20%
Xylene	1330-20-7	7 - 13%
Ethyl Benzene	100-41-4	1 - 5%
Hexamethylene-1,6-Diisocyanate	822-06-0	0.1 - 1%

California Prop 65:

Warning! This product contains chemical(s) known to the State of California to be Carcinogenic:

COMPONENTS	CAS #	WEIGHT %
Ethyl Benzene	100-41-4	1 - 5%

SECTION 16 – OTHER INFORMATION (HMIS RATING)

NFPA 704M Rating

Health	2
Flammability	3
Reactivity	1

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

HMIS Rating

Health	2*
Flammability	3
Physical Hazard	1
Personal Protection	H

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

* = Chronic Health Hazard

Disclaimer: Andek Corporation believes, to the best of its knowledge, information and belief, the information contained herein to be accurate and reliable as of the issue date of this Safety Data Sheet (SDS). However, because the conditions of handling, use, and storage of these materials are beyond Andek Corporation's control, we assume no responsibility or liability for personal injury or property damage incurred by the use of these materials and makes no warranty, expressed or implied, regarding the accuracy or reliability of the data or results obtained from their use. All materials may present unknown hazards and should be used with caution. The information and recommendations contained in the SDS are offered for the users' consideration and examination. It is the responsibility of the user to determine the final suitability of this information and data and to comply with all applicable international, federal, state and local laws and regulations.
