

MATERIAL SAFETY DATA SHEET PRODUCT NAME: 220 B CURING AGENT

HUGHES ASSOCIATES
 18116 MINNETONKA BLVD.
 WAYZATA, MN 55391
 PHONE: (612) 404-2626

EMERGENCY PHONE NO. (612) 404-2626
 CHEMTREC: 800- (not registered at this date)

DATE OF PRINT: 10/8/96

HAZARD RATINGS:

ACUTE HEALTH 3	FIRE 1	REACTIVITY 0	HAZARD RATING - LEAST-0 SLIGHT-1 MODERATE-2 HIGH-3 EXTREME- 4
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PRODUCT NAME - 220 B, CURING AGENT
 CHEMICAL NAME - MIXTURE
 CHEMICAL FAMILY: MODIFIED ALIPHATIC POLYAMINE

SECTION II-A NO.	PRODUCT / INGREDIENTS COMPOSITION	CAS NUMBER	PERCENT
220 B CURING AGENT		MIXTURE	100
1-EPI-CURE 3125	FATTY ACID POLYAMIDE	68410-23-1	
2-	TRIETHYLENETETRAMINE	112-24-3	
3-NONYLPHENOL	PHENOL, NONYL	84852-15-3	
4-EPI-CURE 3015	TETRAETHYLENEPENTAMINE, TALL OIL FATTY ACID	68953-36-6	
5-	TETRAETHYLENEPENTAMINE	112-57-2	

THE 220 B CURING AGENT IS A MIXTURE OF THE ABOVE THREE COMPONENTS. THE PERCENTAGE OF EACH OF THESE INGREDIENTS IS PROPRIETARY INFORMATION.

SUSPECTED CANCER AGENT: NO

SECTION II-B NO.	ACUTE ORAL LD50	ACUTE DERMAL LD50	ACUTE INHALATION LC50
1-2	>5 G/KG (RAT)	>8 G/KG (RABBIT)	NO DATA AVAILABLE
3	.58 G/KG (RAT)	2.14 G/KG (RABBIT)	NO DATA AVAILABLE
4	NO DATA AVAILABLE	NO DATA AVAILABLE	NO DATA AVAILABLE
5	3.99 G/KG (RAT)	0.66 G/KG (RABBIT)	300 MG/M3 (MOUSE)

SECTION III HEALTH INFORMATION

THE HEALTH EFFECTS NOTED BELOW ARE CONSISTENT WITH THE REQUIREMENTS UNDER THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200).

EYE CONTACT

PRODUCT MAY BE EXTREMELY IRRITATING TO THE EYES AND MAY CAUSE SEVERE DAMAGE INCLUDING BLINDNESS. VAPORS MAY BE IRRITATING.

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Epoxy 220, Amber
 Resin & Curing Agent
 TBS # 703008

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SECTION III (CONT.)**HEALTH INFORMATION****SKIN CONTACT**

CAUSES SEVERE IRRITATION WITH PAIN, SEVERE EXCESS REDNESS AND SWELLING WITH CHEMICAL BURNS, BLISTER FORMATION, AND POSSIBLE TISSUE DESTRUCTION. MAY BE TOXIC IF ABSORBED THROUGH SKIN.

INHALATION

VAPORS OR MIST, ESPECIALLY AS GENERATED FROM HEATING THE MATERIAL, MAY PRODUCE SEVERE RESPIRATORY IRRITATION. MAY CAUSE RESPIRATORY TRACT SENSITIZATION. PROLONGED OR REPEATED OVEREXPOSURE MAY RESULT IN LUNG DAMAGE.

INGESTION

NOT EXPECTED TO BE A RELEVANT ROUTE OF EXPOSURE, HOWEVER, MAY CAUSE BURNING OF MOUTH, THROAT, AND STOMACH WITH ABDOMINAL AND CHEST PAIN, NAUSEA, VOMITING, DIARRHEA, THIRST, WEAKNESS, AND COLLAPSE. ASPIRATION MAY OCCUR DURING SWALLOWING OR VOMITING, RESULTING IN LUNG DAMAGE.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

OVEREXPOSURE TO VAPOR, DUST OR MIST MAY AGGRAVATE EXISTING RESPIRATORY CONDITIONS, SUCH AS ASTHMA, BRONCHITIS, AND INFLAMMATORY OR FIBROTIC RESPIRATORY DISEASE. REPEATED INHALATION MAY CAUSE LUNG DAMAGE. PREEXISTING EYE, SKIN AND RESPIRATORY DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT.

SECTION IV**OCCUPATIONAL EXPOSURE LIMITS**

NO.	PEL/TWA	OSHA	PEL/CEILING	TLV/TWA	ACGIH	TLV/STEL
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NONE ESTABLISHED.

SECTION V**EMERGENCY AND FIRST AID PROCEDURES****EYES:**

IMMEDIATELY FLUSH WITH LARGE AMOUNT OF WATER FOR AT LEAST 15 MINUTES. HOLD EYELIDS APART WHILE FLUSHING TO RINSE ENTIRE SURFACE OF EYE AND LIDS WITH WATER. DO NOT ATTEMPT TO NEUTRALIZE WITH CHEMICAL AGENTS. OBTAIN IMMEDIATE MEDICAL ATTENTION. IF PHYSICIAN IS NOT IMMEDIATELY AVAILABLE, CONTINUE FLUSHING WITH WATER FOR ADDITIONAL 15 MINUTES.

SKIN:

IMMEDIATELY REMOVE CONTAMINATED CLOTHING AND SHOES. IMMEDIATELY FLUSH WITH LARGE AMOUNT OF WATER FOR AT LEAST 15 MINUTES. DO NOT ATTEMPT TO NEUTRALIZE WITH CHEMICAL AGENTS. OBTAIN IMMEDIATE MEDICAL ATTENTION. LAUNDRY CLOTHING BEFORE REUSE AND DISCARD CONTAMINATED LEATHER ARTICLES. GET MEDICAL ATTENTION IF SWELLING OR REDDENING OCCURS.

INHALATION:

REMOVE TO FRESH AIR IF EFFECTS OCCUR. IF NOT BREATHING OR IN RESPIRATORY DISTRESS, CLEAR PERSON'S AIRWAY AND START ARTIFICIAL RESPIRATION. WITH A PHYSICIAN'S ADVICE, GIVE SUPPLEMENTAL OXYGEN. GET MEDICAL ATTENTION IF EFFECTS PERSIST.

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SECTION V (CONT.) EMERGENCY AND FIRST AID PROCEDURES**INGESTION:**

IF PERSON IS CONSCIOUS AND CAN SWALLOW, IMMEDIATELY GIVE TWO (16oz.) GLASSES OF WATER BUT DO NOT INDUCE VOMITING. IF VOMITING OCCURS WILL CAUSE FURTHER DAMAGE TO THE THROAT. DILUTE BY GIVING ADDITIONAL WATER. HAVE A PHYSICIAN DETERMINE IF CONDITION OF PATIENT WILL PERMIT INDUCTION OF VOMITING OR EVACUATION OF STOMACH. DO NOT GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS OR CONVULSING PERSON.

SECTION VI SUPPLEMENTAL HEALTH INFORMATION

COMPONENT-2: TRIETHYLENETETRAMINE (TETA) HAS BEEN FOUND TO PRODUCE LIVER AND KIDNEY DAMAGE AND BRAIN CONGESTION IN DERMAL EXPOSED ANIMALS. TETA WAS FOUND TO BE A DIRECT ACTING MUTAGEN IN THE AMES ASSAY. IT GAVE POSITIVE RESULTS WITH AND WITHOUT ACTIVATION.

TETA WAS FETOTOXIC AND TERATOGENIC WHEN FED TO RATS AT 0.83% AND 1.87% OF DIET. WHEN APPLIED DERMALLY TO THE SKIN OF PREGNANT GUINEA PIGS, THERE WAS A 90% ABORTION RATE OR DEATH OF FETUS WITH SECONDARY TO COPPER DEFICIENCY, RESULTING FROM THE CHELATING ACTIVITY OF TETA.

COMPONENT-3: SWALLOWING OF THIS CORROSIVE MATERIAL MAY RESULT IN SEVERE ULCERATION, INFLAMMATION, AND POSSIBLE PERFORATION OF THE UPPER ALIMENTARY TRACT, WITH HEMORRHAGE AND FLUID LOSS. ASPIRATION OF THIS PRODUCT DURING INDUCED EMESIS CAN RESULT IN SEVERE LUNG INJURY. IF EVACUATION OF THE STOMACH IS NECESSARY, USE METHOD LEAST LIKELY TO CAUSE ASPIRATION, SUCH AS GASTRIC LAVAGE AFTER ENDOTRACHEAL INTUBATION. CONTACT A POISON CONTROL CENTER FOR ADDITIONAL TREATMENT INFORMATION.

COMPONENT -5: REPEATED EXPOSURES TO HIGH VAPOUR CONCENTRATIONS OF TETRAETHYLENEPENTAMINE (TEPA) MAY CAUSE INJURY TO THE LIVER, KIDNEY AND RESPIRATORY TRACT. TEPA HAS EXHIBITED EVIDENCE FOR WEAK MUTAGENIC ACTIVITY IN STANDARD IN VITRO TEST SYSTEMS. TEPA DID NOT EXHIBIT CARCINOGENIC POTENTIAL IN LIFETIME MOUSE SKIN PAINTING STUDIES.

REMOVE AND DRY-CLEAN OR LAUNDRER CLOTHING SOAKED OR SOILED WITH THIS MATERIAL BEFORE REUSE. INFORM INDIVIDUALS RESPONSIBLE FOR CLEANING OF POTENTIAL HAZARDS WITH HANDLING CONTAMINATED CLOTHING.

SECTION VII PHYSICAL DATA

LIGHT AMBER, VISCIOUS LIQUID, AMMONIA ODOR.
SPECIFIC GRAVITY: 0.95 AT 77 F
VAPOR DENSITY (AIR=1): >1
VAPOR PRESSURE: <0.1, 20°C, (MM HG)
WATER SOLUBILITY: PARTIAL

DENSITY: 8.1 LBS/GAL AT 77 F.
MELTING POINT: NOT DETERMINED
BOILING POINT: >340 F
EVAPORATION RATE: NOT DETERMINED. (N-BUTYL ACETATE=1)

SECTION VIII FIRE AND EXPLOSION HAZARDS

FLASH POINT AND METHOD:
>200 DEG. F (SETAFLASH)

FLAMMABLE LIMITS % VOLUME IN AIR
LOWER: NA UPPER: NA

EXTINGUISHING MEDIA

USE WATER FOG, "ALCOHOL" FOAM, DRY CHEMICAL OR CO2. DO NOT USE A DIRECT STREAM OF WATER. PRODUCT WILL FLOAT. WATER OR FOAM MAY CAUSE FROTHING WHICH CAN BE VIOLENT IF SPRAYED INTO CONTAINER OF HOT OR BURNING PRODUCT. USE WATER TO COOL FIRE-EXPOSED CONTAINERS.

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SPECIAL FIRE FIGHTING PROCEDURES AND PRECAUTIONS

MATERIAL WILL NOT BURN UNLESS PREHEATED. DO NOT ENTER CONFINED FIRE SPACE WITHOUT FULL BUNKER GEAR (HELMET WITH FACE SHIELD, BUNKER COATS, GLOVES AND RUBBER BOOTS), INCLUDING A POSITIVE PRESSURE NISOH APPROVED SELF-CONTAINED BREATHING APPARATUS.

UNUSUAL FIRE AND EXPLOSION HAZARDS

DELAYED LUNG DAMAGE (PULMONARY EDEMA) CAN BE EXPERIENCED AFTER EXPOSURE TO COMBUSTION PRODUCTS, SOMETIMES HOURS AFTER EXPOSURE. NITROGEN OXIDES AND NITROGEN CONTAINING ORGANIC COMPOUNDS, TOXIC LEVELS OF CARBON MONOXIDE, CARBON DIOXIDE, IRRITATING ALDEHYDES AND KETONES MAY BE FORMED ON BURNING.

SECTION IX**REACTIVITY**

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITION AND MATERIAL TO AVOID:

AVOID HEAT, FLAME AND CONTACT WITH STRONG OXIDIZING AGENTS. REACTION WITH EPOXY RESINS CAN PRODUCE CONSIDERABLE HEAT.

HAZARDOUS DECOMPOSITION PRODUCTS

NITROGEN OXIDES, CARBON MONOXIDE, CARBON DIOXIDE AND UNIDENTIFIED ORGANIC COMPOUNDS (SOME CONTAINING NITROGEN) MAY BE FORMED DURING THERMAL OR OXIDATIVE DECOMPOSITION OR COMBUSTION.

SECTION X**EMPLOYEE PROTECTION****RESPIRATORY PROTECTION**

AVOID BREATHING VAPORS / MISTS. USE A NISOH-APPROVED RESPIRATOR AS REQUIRED TO PREVENT OVEREXPOSURE. IN ACCORD WITH 29 CFR 1910.134, USE EITHER A FULL-FACE, ATMOSPHERE-SUPPLYING RESPIRATOR OR AN AIR-PURIFYING RESPIRATOR FOR ORGANIC VAPORS.

PROTECTIVE CLOTHING

WEAR CHEMICAL GOGGLES. AVOID CONTACT WITH SKIN AND CLOTHING. WEAR CHEMICAL-RESISTANT GLOVES AND PROTECTIVE CLOTHING.

ADDITIONAL PROTECTIVE MEASURES

USE VENTILATION AS REQUIRED TO CONTROL VAPOR CONCENTRATIONS. EYE WASH FOUNTAINS AND SAFETY SHOWER SHOULD BE AVAILABLE FOR EMERGENCY USE.

SECTION XI**ENVIRONMENTAL PROTECTION****SPILL OR LEAK PROCEDURES**

VENTILATE AREA. COMPONENT-2 IS RESISTANT TO BIODEGRADATION IN BIOLOGICAL WASTE WATER TREATMENT PLANTS. IT COULD BE TOXIC TO THE BIOMASS IN A TREATMENT PLANT AND COULD BE TOXIC TO FISH. PREVENT ENTRY INTO SEWERS AND WATERWAYS. MAY BURN ALTHOUGH NOT READILY IGNITABLE. --- SMALL SPILLS--- SOAK UP RESIDUE WITH AN ABSORBENT SUCH AS CLAY, SAND OR OTHER SUITABLE MATERIAL; DISPOSE OF PROPERLY.

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SECTION XII SPECIAL PRECAUTION

WARNING. EXTREMELY IRRITATING TO THE EYES. MAY CAUSE SKIN AND RESPIRATORY TRACT IRRITATION AND SENSITIZATION. CONTAINERS, EVEN THOSE THAT HAVE BEEN EMPTIED, CAN CONTAIN HAZARDOUS PRODUCT RESIDUES. WASH WITH SOAP AND WATER BEFORE EATING, DRINKING, SMOKING, APPLYING COSMETIC, OR USING TOILET FACILITIES. LAUNDRY CONTAMINATED CLOTHING BEFORE REUSE. CONTAMINATED LEATHER ARTICLES INCLUDING SHOES CANNOT BE DECONTAMINATED AND SHOULD BE DESTROYED.

HEATING THIS CURING AGENT IN THE PRESENCE OF AIR MAY CAUSE THERMAL AND OXIDATIVE DECOMPOSITION. WITH SOME EPOXY RESINS, IT MAY PRODUCE EXOTHERMIC REACTIONS WHICH IN LARGE MASSES CAN CAUSE RUNAWAY POLYMERIZATION AND CHARRING OF THE REACTANTS. FUMES AND VAPORS FROM THE THERMAL AND CHEMICAL DECOMPOSITIONS VARY WIDELY IN COMPOSITION AND TOXICITY. DO NOT BREATHE FUMES. USE A NIOSH-APPROVED RESPIRATOR AS REQUIRED TO PREVENT OVER EXPOSURE. IN ACCORD WITH 29 CFR 1910.134, USE EITHER A ATMOSPHERE-SUPPLYING RESPIRATOR OR AN AIR-PURIFYING RESPIRATOR FOR ORGANIC VAPORS.

STORE IN A COOL, DRY PLACE WITH ADEQUATE VENTILATION. KEEP AWAY FROM OPEN FLAMES AND HIGH TEMPERATURES. MISUSE OF EMPTY CONTAINERS CAN BE HAZARDOUS. CUTTING OR WELDING OF EMPTY CONTAINERS MIGHT CAUSE FIRE, EXPLOSION OR TOXIC FUMES FROM RESIDUES. DO NOT PRESSURIZE CONTAINERS TO EMPTY THEM.

SECTION X111 TRANSPORTATION REQUIREMENTS

DEPARTMENT OF TRANSPORTATION CLASSIFICATION:
NOT HAZARDOUS BY D.O.T REGULATIONS

SECTION XIV OTHER REGULATORY CONTROLS

THE COMPONENTS OF THIS PRODUCT ARE LISTED ON THE EPA /TSCA INVENTORY OF CHEMICAL SUBSTANCES.

PROTECTION OF STRATOSPHERE OZONE (PURSUANT TO SECTION 611 OF THE CLEAN AIR ACT AMENDMENTS OF 1990): PER CFR PART 82 THIS PRODUCT DOES NOT CONTAIN NOR WAS IT DIRECTLY MANUFACTURED WITH ANY CLASS I OR CLASS II OZONE DEPLETING SUBSTANCE.

IN ACCORDANCE WITH SARA TITLE III, SECTION 313, THE ATTACHED ENVIRONMENTAL DATA SHEET (EDS) SHOULD ALWAYS BE COPIED AND SENT WITH THE MSDS.

SECTION XV STATE REGULATORY INFORMATION

THE FOLLOWING CHEMICALS ARE SPECIFICALLY LISTED BY INDIVIDUAL STATES; OTHER PRODUCTS 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.

<u>STATE LISTED COMPONENT</u>	<u>PERCENT</u>	<u>STATE CODE</u>
TRIETHYLENETETRAMINE (TETA) (CAS NO: 112-24-3)	< 18	CA, FL, MA, NJ, PA
TETRAETHYLENEPENTAMINE (CAS NO: 112-57-2)	< 10	FL, MA, NJ, PA

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SECTION XVI

SPECIAL NOTES

AFTER FURTHER REVIEW OF ALL AVAILABLE TOXICITY STUDIES ON TRIETHYLENETETRAMINE (TETA), IT WAS CONCLUDED THAT THESE STUDIES DID NOT PROVIDE SIGNIFICANT EVIDENCE OF LIVER, KIDNEY, CNS AND REPRODUCTIVE TARGET ORGAN TOXICITY.

REGULATORY INFORMATION: (NOT MEANT TO BE ALL-INCLUSIVE--SELECTED REGULATIONS REPRESENTED).

NOTICE: THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE TO US AND IS BELIEVED TO BE CORRECT AS OF THE EFFECTIVE DATE SHOWN ABOVE. HOWEVER, HUGHES ASSOCIATES MAKES NO WARRANTY, EXPRESS OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. HUGHES ASSOCIATES ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

REGULATORY REQUIREMENTS ARE SUBJECT TO CHANGE AND MAY DIFFER FROM ONE LOCATION TO ANOTHER; IT IS THE BUYER'S RESPONSIBILITY TO ENSURE THAT ITS ACTIVITIES COMPLY WITH FEDERAL, STATE OR PROVINCIAL, AND LOCAL LAWS. THE SPECIFIC INFORMATION HEREIN IS MADE FOR THE PURPOSE OF COMPLYING WITH NUMEROUS FEDERAL, STATE OR PROVINCIAL, AND LOCAL LAWS AND REGULATIONS. SEE MSDS SHEET FOR HEALTH AND SAFETY INFORMATION.

DATE PREPARED: OCTOBER 8, 1996

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STATE	REGULATORY INFORMATION
CA	...
IL	...
IN	...
MI	...
MN	...
ND	...
SD	...
TX	...
VA	...
WI	...
WV	...
WY	...

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