

MATERIAL SAFETY DATA SHEET

SECTION I

POLYMERIC IMAGING INC.
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ISSUED: 04.11.03
REVISED: 03.01.04/09.30.04/10.25.05, 09.29.10, 02.04.11
REVISION NUMBER: 7

PRODUCT NAME: IMAGEMARK
PRODUCT CODE: XR
COMMON NAME: UV CURABLE
INK
HMIS
HEALTH: 2
FLAMMABILITY: 1
REACTIVITY: 1

SECTION II

COMPONENTS

| COMPONENTS | CAS # | OSHA PEL | ACGIH TLV |
|----------------------|-------|----------|-----------|
| ACRYLATE ESTER BLEND | TS | NE | NE |
| RESIN | TS | NE | NE |
| ACRYLATE ESTER* | TS | NE | NE |
| KETONE INITIATOR | TS | NE | NE |
| SYNERGIST | TS | NE | NE |

THE XR SERIES IS FORMULATED TO BE N-VINYLPYRROLIDONE(NVP) FREE
ALL COMPONENTS USED ARE EITHER LISTED OR EXCLUDED FROM LISTING ON THE TSCA
INVENTORY.

*SARA TITLE III SECTION 313 INFORMATION:

THIS PRODUCT CONTAINS THE FOLLOWING TOXIC CHEMICALS SUBJECT TO THE ANNUAL REPORTING REQUIREMENTS OF SECTION 313 TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 AND 40 CFR 372.

MEETS THE DEFINITION OF THE GLYCOL ETHER CATEGORY

CALIFORNIA PROP 65:

THIS PRODUCT CONTAINS, OR MAY CONTAIN, TRACE QUANTITIES OF A SUBSTANCE(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND/OR REPRODUCTIVE TOXICITY.

DOT/IATA SHIPPING INFORMATION

DOT COMMON NAME: NOT REGULATED
DOT HAZARD CLASS: NOT REGULATED
IATA COMMON NAME: NOT REGULATED
IATA HAZARD CLASS: NOT REGULATED

SECTION III

PHYSICAL/CHEMICAL CHARACTERISTICS

| | |
|---|------------------|
| BOILING POINT: °CELSIUS/°FAHRENHEIT | >150°C |
| VAPOR PRESSURE: MMHG | <1 MM HG @20°C |
| VAPOR DENSITY: AIR=1 | HEAVIER THAN AIR |
| SPECIFIC GRAVITY: H ₂ O=1 | NA |
| MELTING POINT: °CELSIUS/°FAHRENHEIT | NA |
| EVAPORATION RATE: BUTYL ACETATE=1 | NA |
| SOLUBILITY IN WATER: | NEGLIGIBLE |

| | |
|----------------------|----------------------------|
| APPEARANCE AND ODOR: | PIGMENTED, VARIES BY COLOR |
|----------------------|----------------------------|

SECTION IV

FIRE AND EXPLOSION HAZARD DATA

| | |
|-------------------------------------|------------------------------|
| FLASHPOINT: °CELSIUS/°FAHRENHEIT | >200°F |
| FLAMMABLE LIMITS: | |
| LEL | UNKNOWN |
| UEL | UNKNOWN |
| EXTINGUISHING MEDIA: | ALCOHOL FOAM CO ₂ |
| | DRY CHEMICAL WATER FOG |
| CORROSIVE: | NO |

SPECIAL FIREFIGHTING PROCEDURES:

FULL PROTECTIVE EQUIPMENT IS RECOMMENDED TO PROTECT FIRE FIGHTERS FROM ANY HAZARDOUS DECOMPOSITION PRODUCTS. WATER MAY BE UNSUITABLE FOR USE ON BURNING LIQUIDS. IF WATER MUST BE USED, FOG NOZZLES ARE HIGHLY PREFERABLE. WATER MAY BE USED TO COOL CLOSED CONTAINERS TO PREVENT PRESSURE BUILD-UP AND POSSIBLE AUTO-IGNITION, EXPLOSION, OR RUPTURE WHEN EXPOSED TO EXTREME HEAT.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

KEEP CONTAINERS TIGHTLY CLOSED. ISOLATE FROM HEAT, SPARKS, ELECTRICAL EQUIPMENT AND OPEN FLAMES. CLOSED CONTAINERS MAY RUPTURE OR EXPLODE WHEN EXPOSED TO EXTREME HEAT. APPLICATION TO HOT SURFACES REQUIRES SPECIAL PRECAUTIONS. DURING EMERGENCY CONDITIONS, OVEREXPOSURE TO DECOMPOSITION PRODUCTS MAY CONSTITUTE A HEALTH HAZARD. SYMPTOMS MAY NOT BE IMMEDIATELY APPARENT. OBTAIN MEDICAL ATTENTION.

SECTION V

REACTIVITY DATA

| | | | |
|---------------------------------------|-------------------------|----------------------|---|
| STABILITY: | UNDER NORMAL CONDITIONS | CONDITIONS TO AVOID: | STRONG ACIDS, OXIDIZERS, ALKALI METAL HYDROXIDES, POLYMERIZATION INITIATORS, PEROXIDES, INERT GASES, AMINES, EXTREME TEMPERATURES, DIRECT SUNLIGHT, XRAY SOURCES, ELECTRON BEAM SOURCES, UV RADIATION SOURCES |
| HAZARDOUS DECOMPOSITION OR BYPRODUCTS | | | CARBON MONOXIDE, CARBON DIOXIDE, MIXED OXIDES OF NITROGEN, SULFUR AND METHACRYLATE MONOMERS |
| HAZARDOUS POLYMERIZATION | | | SEE ABOVE |

SECTION VI

HEALTH HAZARD DATA

| | |
|-------------------------------|---|
| ROUTES OF ENTRY: | INHALATION, EYE, SKIN, INGESTION |
| HEALTH HAZARDS: ACUTE/CHRONIC | MAY CAUSE SKIN SENSITIZATION, DERMATITIS. ACRYLATES HAVE BEEN REPORTED TO BE MUTAGENIC ONLY IN THE MOUSE LYMPHOMA ASSAY, BUT NEGATIVE IN THE AMES TEST. |
| CARCINOGENICITY: | NONE KNOWN |
| NTP: OSHA: | UNKNOWN |
| IARC MONOGRAPHS: | UNKNOWN |

SIGNS AND SYMPTOMS OF OVEREXPOSURE:

INGESTION: MAY CAUSE IRRITATION OF THE MOUTH, THROAT, ESOPHAGUS, AND STOMACH. THERE MAY BE DISCOMFORT OR PAIN IN THE MOUTH, THROAT, CHEST AND ABDOMEN, WITH NAUSEA, VOMITING, DIARRHEA, DIFFICULTY SWALLOWING, WEAKNESS, THIRST, DIZZINESS, AND DROWSINESS. ASPIRATION INTO THE LUNGS MAY OCCUR DURING INGESTION OR VOMITING, RESULTING IN LUNG INJURY.

INHALATION: EXPOSURE TO VAPORS IS UNLIKELY DUE TO LOW VAPOR PRESSURE OF INGREDIENTS, BUT INHALATION OF MIST, AEROSOLS, OR VAPORS MAY RESULT IN IRRITATION OF RESPIRATORY TRACT COUGHING, SHORTNESS OF BREATH AND DIZZINESS.

SKIN: CONTAINS MATERIAL THAT MAY CAUSE SEVERE SKIN IRRITATION (REDDENING AND SWELLING) AND/OR SENSITIZATION. PROLONGED CONTACT MAY CAUSE BLISTER FORMATION (BURNS). SINCE IRRITATION MAY NOT OCCUR IMMEDIATELY, CONTACT CAN GO UNNOTICED.

EYE: CONTAINS MATERIALS THAT MAY CAUSE MODERATE IRRITATION, INCLUDING BURNING SENSATION TEARING, REDNESS OR SWELLING.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

DERMATITIS, LUNG CONDITIONS(I.E. ASTHMA), SENSITIZATION, ALLERGIES, SKIN AND EYE CONDITIONS.

EMERGENCY AND FIRST AID PROCEDURES:

INGESTION: DRINK TWO GLASSES OF WATER TO DILUTE. DO NOT INDUCE VOMITING. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. CONSULT PHYSICIAN OR POISON CONTROL CENTER IMMEDIATELY. TREAT SYMPTOMATICALLY. BE PREPARED TO PROVIDE THE ATTENDING PHYSICIAN WITH A COPY OF THIS DOCUMENT.

INHALATION: REMOVE VICTIM TO A WELL VENTILATED AREA. GIVE OXYGEN OR ARTIFICIAL RESPIRATION AS REQUIRED. TREAT SYMPTOMATICALLY AND CONSULT PHYSICIAN.

SKIN CONTACT: REMOVE CONTAMINATED CLOTHING. WASH THOROUGHLY WITH MILD SOAP AND WARM WATER. CONSULT A PHYSICIAN IF THERE IS ANY PERSISTING IRRITATION.

EYE CONTACT: FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST FIFTEEN MINUTES. CONSULT PHYSICIAN.

SECTION VII**PRECAUTIONS FOR SAFE HANDLING & USAGE**

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

PLACE LEAKING CONTAINERS IN A WELL VENTILATED AREA. AVOID BREATHING VAPORS. ELIMINATE ALL SOURCES OF HEAT, AS WELL AS ALL CONDITIONS NOTED IN SECTION VII, ABOVE. NOTIFY PROPER AUTHORITIES IF PUBLIC WATERS OR SEWERS ARE CONTAMINATED.

WASTE DISPOSAL METHODS:

THIS MATERIAL IS CONSIDERED NON-HAZARDOUS, AS SUPPLIED. IF COMBINED WITH OTHER PRODUCTS, USER MUST DETERMINE IF THE PRODUCT IS STILL CONSIDERED NON-HAZARDOUS. THIS MATERIAL MUST BE DISPOSED OF IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL ORDINANCES. INQUIRE OF YOUR LOCAL ENVIRONMENTAL AGENCIES FOR THE EXACT LEGAL REQUIREMENTS IN YOUR AREA.

THIS PRODUCT SHOULD NOT BE RELEASED INTO WATERWAYS OR SEWERS.

REFER TO SECTIONS IV, V, VI, VII AND IX OF THIS DOCUMENT BEFORE ATTEMPTING ANY CLEANUP.

VIII**ECOLOGICAL TOXICITY**

INITIATOR BLEND IS 0-5% BY WEIGHT

INITIATOR 1

TOXICITY TO FISH

LC50 96 HOUR ZEBRA FISH 9 PPM

TOXICITY TO INVERTEBRATES

EC50 24 HOUR DAPHNIA MAGNA 15 PPM

TOXICITY TO ALGAE

EC50 72 HOUR GREEN ALGAE 1.7 PPM

INITIATOR 2

TOXICITY TO FISH

LC50 48 HOURS ORYZIAS LATIPEDES 1-10 MG/L

INITIATOR 3

TOXICITY TO FISH

LC50 96 HOUR .46 PPM

TOXICITY TO INVERTEBRATES

EC50 24 HOUR DAPHNIA MAGNA >.8 PPM

TOXICITY TO ALGAE

EC50 0-72 HOUR GREEN ALGAE 4 PPM

PERSISTENCE AND DEGRADABILITY: NO INFORMATION AVAILABLE

BIOACCUMULATION: NO INFORMATION AVAILABLE

MOBILITY IN ENVIRONMENTAL MEDIA: NO INFORMATION AVAILABLE

DO NOT RELEASE TO WATERWAYS OR SEWERS. DO NOT POUR DOWN DRAIN.

SECTION IX**CONTROL MEASURES****RESPIRATORY PROTECTION:**

EXPOSURE TO VAPORS IS UNLIKELY DUE TO LOW VAPOR PRESSURE OF INGREDIENTS, BUT INHALATION OF MIST, AEROSOLS OR VAPORS MAY RESULT IN IRRITATION OF RESPIRATORY TRACT COUGHING, SHORTNESS OF BREATH AND DIZZINESS. IF VAPORS OR MIST EXCEEDS AIR MONITORING LEVELS, A NIOSH APPROVED RESPIRATOR MAY BE USED.

VENTILATION:

LOCAL EXHAUST RECOMMENDED WHEN APPROPRIATE TO CONTROL EXPOSURE TO MISTS OR AEROSOLS. GENERAL EXHAUST IS NORMALLY ADEQUATE TO MINIMIZE EXPOSURE TO VAPORS.

PROTECTIVE EQUIPMENT:

GLOVES

GOGGLES

SAFETY GLASSES

APRON

RESPIRATOR

WORK/HYGIENIC PRACTICES:

WASH HANDS BEFORE EATING, USING TOBACCO PRODUCTS, OR USING THE WASHROOM. TOBACCO AND FOOD SHOULD BE CONSUMED IN DESIGNATED AREAS ONLY.

PURCHASERS OBLIGATION

POLYMERIC URGES THE CUSTOMER RECEIVING THIS MATERIAL SAFETY DATA SHEET TO STUDY IT CAREFULLY TO BECOME AWARE OF HAZARDS, IF ANY OF THE PRODUCTS INVOLVED. IN THE INTEREST OF SAFETY, YOU SHOULD(1) NOTIFY YOUR EMPLOYEES, AGENTS AND CONTRACTORS OF THE INFORMATION ON THIS SHEET, (2) FURNISH A COPY TO EACH OF YOUR CUSTOMERS FOR THIS PRODUCT, AND (3) REQUEST YOUR CUSTOMERS TO INFORM THEIR EMPLOYEES, CUSTOMERS AND AGENTS AS WELL.

DISCLAIMER

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