SAFETY DATA SHEET

SDS Code 4015 Cross-Linker
Date Prepared 9/20/2017

THE EMERGENCY PHONE NUMBER IS: **CHEMTREC (800) 424-9300**
1-(713) 527-3887 (International)

For (non EMERGENCY) Product information call: **Createx Colors 860-653-5505**

Section 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 4015 Cross-Linker
SYNONYM: Polyfunctional Aziridine

CAS/TSCA Number: 57116-45-7
ECION/EINECS Number: 260-568-2

DISTRIBUTOR
Color Craft Ltd / Createx Colors
14 Airport Park Road
East Granby CT 06026

EMERGENCY PHONE NUMBERS ARE
CHEMTREC (800) 424-9300 (U.S. and Canada)
1-(713) 527-3887 (International)

Section 2 HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Serious eye damage/eye irritation, Category 1	H318
Sensitisation, Skin, Category 1B	H317
Germ cell mutagenicity, Category 2	H341
Carcinogenicity, Category 2	H351

2.2 Label Elements

Hazard pictogram

Signal Words: Danger

Hazard statements:
H317 – May cause an allergic skin reaction
H318 – Causes serious eye damage
H341 – Suspected of causing genetic defects
H413 – Harmful to aquatic life with long lasting effects

Precautionary statements:
P201 – Obtain special instructions before use
P202 – Do not handle until all safety precautions have been read and understood
P264 – Wash skin thoroughly after handling
P280 – War protective gloves/protective clothing/eye protection/face protection
P305+P351+P338+P310 – IF IN EYE: Rinse cautiously with water for several Minutes. Remove contact lenses, if present, and continue to rinse. Immediately Call a POISON CENTER/doctor
P333+P313 – If skin irritation or rash occur: Get medical advice/attention
P281 – Use personal protection equipment as required

Section 3 COMPOSITION / INFORMATION ON INGREDIENTS

PRODUCT/ INGREDIENT:	CAS/TSCA Number	Amount (%)
POLYFUNCTIONAL AZIRIDINE	57116-45-7	> 99
EHTYLENE IMINE	151-56-4	< 10 pp

Section 4 FIRST AID MEASURES

Eye Contact:
Immediately flush the eyes with large quantities of running water for at least 15 minutes, while holding the eyelids apart during the flushing to ensure rinsing of the entire surface of the eye and lids with water. Do no attempt to neutralize with chemical agents. Obtain medical attention as soon as possible.

Skin Contact:
Immediately flush with large quantities of running water for at least 15 minutes, and then wash off of skin with plenty of soap and water. If redness, itching or burning sensation develops, get medical attention. Wash (or discard) contaminated clothing. Discard or decontaminate footwear before reuse.

Inhalation:
Remove victim to fresh air. If not breathing, give mouth-to-mouth respiraton. If breathing is labored, give oxygen. Obtain medical attention as soon as possible.

Ingestion:
Do not induce vomiting. Give one or two glasses of water to drink and refer to medical personnel or take direction from either a physician or a poison control center. Never give anything by mouth to an unconscious person. Obtain medical attention as soon as possible.

Section 5 FIRE FIGHTING MEASURES

FLASH POINT: > 212 °F (100°C) Pensky-Martens Closed Cup (ASTM D-93)
AUTOIGNITION TEMPERATURE: 482 °C (900 °F)

HAZARDOUS THERMAL DECOMPOSTION PRODUCTS:

In case of fire, may produce hazardous decomposition products such as carbon monoxide, carbon dioxides, (dense) black smoke, aldehydes, organic acids, nitrogen oxides (NO, NO2, etc.), ammonia, amines

Section 5 FIRE FIGHTING MEASURES (Continued)

EXTINGUISHING MEDIA:
Use water fog, foam, carbon dioxide, dry chemical, halogenated agents. Use a water spray to cool fire-exposed containers.

SPECIAL PROCEDURES:
Wear self-contained positive breathing apparatus (SCBA) and complete personal protective equipment. Remove all ignition sources. Use a water spray to cool fire-exposed containers.

Section 6 ACCIDENTAL RELEASE MEASURES

SPILL OR LEAK PROCEDURES:
Emergency clean-up workers should wear protective clothing (see Section 8). Remove any sources of fire, heating elements, etc. Contain spill. Soak up material with absorbent and shovel into a chemical waste container. Decontaminate with weak acid solution such as a 1% acetic acid solution, or one part white vinegar to four parts water

WASTE DISPOSAL:
Incinerate or dispose of in approved landfill. Dispose of as an aqueous waste after reaction with weak acid, with approval of local, state or federal agency.

Section 7 HANDLING AND STORAGE

General Handling:
Wear protective clothing. (See Section 8) Open containers in a well-ventilated area to avoid exposure to residual ethylene imine that may have collected in headspace. Avoid breathing vapors or aerosols. Prevent skin and eye contact. A sensitized individual should not be exposed to the product which caused the sensitization. Ground and bond containers and equipment before transferring to avoid static sparks.

Storage:
Keep containers tightly sealed. Store in a cool, dry, well ventilated area away from heat, sources of ignition, direct sunlight, and incompatible materials.

Section 8 EXPOSURE CONTROL / PERSONAL PROTECTION

ENGINEERING CONTROLS:
Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

EYE AND FACE PROTECTION:
Wear chemical tight goggles and full face shield.

RESPIRATORY PROTECTION:

Protect against inhaling vapors or aerosols by local exhaust or hood. Where engineered measures are not feasible, for non-spray applications an air purifying respirator with organic vapor cartridge may be worn. For spray applications a NIOSH-certified full face piece supplied-air respirators provide the highest protection. Where the use of supplied-air respirators is not feasible, NIOSH certified full face piece air purifying respirators equipped with high efficiency filters may be used. For fire-fighting or other emergency situations use a NIOSH/MSHA approved positive pressure self-contained breathing apparatus.

Section 8 EXPOSURE CONTROL / PERSONAL PROTECTION (Continued)

PROTECTIVE CLOTHING:
Use gloves, arm covers and apron determined to be impervious under the conditions of use. Additional protection, such as full body suit and boots may be required depending on conditions. Remove contaminated clothing and wash before re-wearing.

ADDITIONAL PROTECTIVE MEASURES:
Local exhaust should be used when appropriate to control employee exposure. Safety showers and eyewash facilities must be immediately available. Employees should wash their hands and face before eating, drinking, or using tobacco products

Section 9 PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Liquid
Color:	Clear yellowish
Odor:	Amine-like
Odor threshold:	No data available
pH:	9.6 (10 % aqueous solution)
Melting point (°C):	< -20
Decomposition point (°C):	No data available
Critical temperature (°C):	No data available
Auto-ignition temperature (°C):	345°C (1013 hPa) (EU method A.15)
Flammability (solid, gas):	Not applicable (liquid)
Upper/lower flammability or explosive limits:	No data available
Flash point (°C):	171°C (1013 hPa) (EU method A.9, closed cup)
Initial boiling point (°C):	236.3 +0.6°C (OECD 103; EU method A.2)
Final boiling point (°C):	No data available
Evaporation rate:	Not applicable
Vapor pressure:	8.93E-010 Pa (25°C) (estimated data; MPBPWIN v1.43)
Vapor density:	Not applicable
Relative density liquid (water =1):	No data available
Relative density:	1.179 (20°C) (OECD 109)
Solubility in water:	Miscible (OECD 105; EU method A.6)
Log Pow octanol/water at 20°C:	Between -1.59 and -0.81 (estimated data; KOWWIN v1.68)
Viscosity:	6036 mPa.s (20°C) (OECD 114) 1442 mPa.s (40°C) (OECD 114)
Volatile Organic Compounds, %, :	0.6

Section 10 STABILITY AND REACTIVITY

Stability and reactivity:
The product is stable.
Hazardous reactions:
Not established
Conditions To Avoid:
Avoid contamination with acidic materials, heat (>50°C), direct sunlight, ultraviolet radiation, strong oxidizing conditions and freezing conditions. Unstable at elevated temperatures and pressures, or may react with water or acids with some release of energy, but not violently.

Section 10 STABILITY AND REACTIVITY: Continued

Incompatible Materials:
Acidic materials, anhydrides, strong oxidizers, copper, copper compounds, silver, silver compounds

Hazardous Polymerization:
May occur if mixed with acidic materials.

Hazardous Decomposition Products:
Fumes. Carbon monoxide. Carbon dioxide

Section 11 TOXICOLOGICAL INFORMATION

PRODUCT/ INGREDIENT	ORAL LD50 (Rat)	DERMAL LD50 (Rabbit)
Polyfunctional Aziridine	~ 4.92 ml/kg	>3000 mg/kg

Sensitization
Known skin sensitizer based on animal studies. Known respiratory sensitizer.
Chronic Toxicity
Repeated exposure may cause allergic skin reaction
Carcinogenicity
Not listed as a carcinogenic by IRAC, NTP or ACGIH or regulated as a carcinogen by OSHA.
Mutagenicity
Positive activity has been reported for aziridine-based crosslinkers.
Corrosivity
Corrosive to the eyes
Eye Irritation
Eye corrosive based on animal studies.
Skin Irritation
Moderate skin irritant based on animal studies.

Section 12 ECOLOGICAL INFORMATION

Acute toxicity to fish
LC50 (lethal concentration, 50%) 62.5 mg/L (96 h: estimated data; ECOSTAR v1.00a)
Chronic toxicity to fish
NOEC (no observed effect concentration).: No data available
Acute toxicity to crustaceans
EC50 (effect concentration, 50%): >100 mg/L (48 h; estimated data; ECOSTAR v1.00a)
Acute toxicity to algae and other aquatic plants
EC50 (effect concentration, 50%): 30 mg/L (96 h; estimated data; ECOSTAR v1.00a)
Persistence and degradation
Not readily biodegradable: Aerobic biodegradation: 16.1% (day 28) (OECD 301F; EU method C.4-D)

Section 12 ECOLOGICAL INFORMATION (Continued)

Bioaccumulative potential

Bioconcentration factor (BCF): No data available Partition coefficient: n-octanol/water (log Pow): Between -1.59 and -0.81 (estimated data: KOWWIN v1.68)

Mobility in soil

Low potential for adsorption (low octanol-water partition coefficient)

Results of PBT and vPvB assessment

The substance does not meet the criteria for PBT or vPvB

Section 13 DISPOSAL CONSIDERATIONS

Disposal Method:

According to RCRA, it is the responsibility of the waste generator to ensure proper disposal. Disposal of this material should be in accordance with local, state / provincial and federal regulations. The unused product as manufactured is a RCRA non-hazardous waste in accordance with 40 CFR261.

Container Disposal:

Empty container may contain product residue. Observe all personal protection precautions found in Section 8 when handling. Also, observe all product handling cautions as listed in this MSDS. Do not reuse empty containers without proper cleaning. Recondition or dispose container in accordance with governmental regulations.

Section 14 TRANSPORT INFORMATION

DOT/TDG HAZARDOUS MATERIAL DESCRIPTION: Not regulated.

Section 15 REGULATORY INFORMATION

United States

SARA TITLE III (Superfund Amendments and Reauthorization Act)

- **Sections 311 / 312 HAZARD CATEGORIES:** Acute health hazard, chronic health hazard, reactivity health hazard.
- **Section 313 REPORTABLE INGREDIENTS:** Ingredients in this product are not subject to notification.

TSCA (Toxic Substance Control Act): This material complies with all inventory requirements.

CERCLA (Comprehensive, Response, Compensation and Liability Act)

- **CERCLA Regulatory:** None of the ingredients in the product are reportable under CERCLA.

California Proposition 65, Massachusetts, New Jersey, Pennsylvania Right-To-Know

PRODUCT/ INGREDIENT	CAS Number	State Listing
Polyfunctional Aziridine	57116-45-7	Listed NJ (4), PA (3), RI
Ethylene Imine	151-56-4	Listed MA, PA (2), Known to California to cause cancer

Canada

CEPA (Canadian Environmental Protection Act): CEPA (Canadian Environmental Protection Act): All components are on the DSL (Domestic Substances List).

Section 15 REGULATORY INFORMATION: (Continued)

WHMIS Classification:
Class D, Division 1A, Very Toxic Material at > 1%
Class D, Division 2A, Very Toxic Material at > 0.01%
Class D, Division 2B, Very Toxic Material at > 1%

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

EUROPE:

REACH: This material complies with all inventory requirements **Harmonizing Codes:**

2933.99.97 Heterocyclic compounds with nitrogen hetero-atom(s) only (con.): other

Section 16 OTHER INFORMATION

HMIS Rating (Scale 0 - 4)

NFPA RATINGS

Health =3

Fire =1

Reactivity =1