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KR-F2311

MATERIAL SAFETY DATA SHEET

FOR EMERGENCY ASSISTANCE
CALL: 1-800-424-9300 CHEMTREC

FOR ADDITIONAL INFORMATION
CALL: 412-321-9800

SECTION 1: PRODUCT IDENTIFICATION

PRODUCT NAME: **KR-F2311**
CHEMICAL DESCRIPTION: Anionic polyacrylamide in water-in-oil emulsion
PRODUCT CLASS: Polymers
VERSION: 8-02-11

SECTION 2: INFORMATION ON INGREDIENTS

Chemical Name	CAS #	Weight %	OSHA PEL	ACGIH TLV
Petroleum distillate, hydrotreated, light	64742-47-8	20.5-22.5	TWA: 500 ppm*	None established
C_{12-14} alcohol, ethoxylated	68439-50-9	0-2.7	None established	None established
Alcohols (C_{10-16}), ethoxylated	68002-97-1	0-2.7	None established	None established
Alcohols (C_{12-16}), ethoxylated	68551-12-2	0-2.7	None established	None established

*Supplier PEL: 1,200 mg/m^3, 165 ppm

SECTION 3: HAZARDS IDENTIFICATION

**********EMERGENCY OVERVIEW **********

Grayish-white emulsion.
WARNING!
May cause mild eye irritation.
May cause moderate skin irritation.
Product spills will make floors extremely slippery.

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PRIMARY ROUTES OF ENTRY: Eye contact and skin contact

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Conditions of the skin may be aggravated by overexposure to this product.

POTENTIAL HEALTH EFFECTS:

EYE CONTACT: Contact may cause mild eye irritation.

SKINCONTACT: Contact may cause moderate skin irritation.

INGESTION: This product would be expected to have low toxicity by ingestion.

INHALATION: This product is not expected to present an inhalation hazard under normal conditions of handling and use.

SUBCHRONIC, CHRONIC: This product contains petroleum distillates, hydrotreated, light. Prolonged or repeated skin contact with this component tends to remove skin oils, possibly leading to irritation and dermatitis. For more information on the toxicological effects of the product components, see Section 11 (Toxicological Information).

CARCINOGENICITY:
NTP: No ingredients listed in this section
IARC: No ingredients listed in this section
OSHA: No ingredients listed in this section

SECTION 4: FIRST AID MEASURES

EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes, lifting the upper and lower eyelids occasionally to ensure complete rinsing. Get medical attention if irritation occurs.

SKIN CONTACT: Remove contaminated clothing and shoes without delay. Wash immediately with plenty of water. Do not reuse contaminated clothing without laundering. Get medical attention if pain or irritation persists after washing or if signs and symptoms of overexposure appear.

INGESTION: If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

INHALATION: Remove victim to fresh air. If breathing stops, give artificial respiration. If breathing is difficult, have a trained medical person give oxygen. Obtain medical attention if symptoms occur.

SECTION 5: FIRE-FIGHTING MEASURES

FLASH POINT: 200 ^{o}F (93.3 ^{o}C)

LOWER FLAMMABLE LIMIT: Not available

UPPER FLAMMABLE LIMIT: Not available

AUTO-IGNITION TEMPERATURE: Not available

EXTINGUISHING MEDIA: Water stream may be ineffective. Use water spray, alcohol foam, carbon dioxide, or dry chemical to extinguish fires.

FIRE-FIGHTING INSTRUCTIONS: Exercise caution when fighting any chemical fire. Wear a self-contained breathing apparatus and full firefighting protective clothing. Keep fire-exposed containers cool by spraying with water.

FIRE & EXPLOSION HAZARDS: Product emits toxic gases under fire conditions.

DECOMPOSITION PRODUCTS: Thermal decomposition or combustion may produce carbon monoxide, carbon dioxide, ammonia, and nitrogen oxides.

NFPA RATINGS: Health = 2 Flammability = 1 Reactivity = 0 Special Hazard = None

Hazard rating scale: 0=Minimal; 1=Slight; 2=Moderate; 3=Serious; 4=Severe

SECTION 6: ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS: Where the exposure level is NOT known, wear an approved, positive pressure, self-contained respirator. Where the exposure level is known, wear an approved respirator suitable for the level of exposure. In addition to the protective clothing/equipment in Section 8 (Exposure Controls/Personal Protection), wear impermeable boots.

WARNING: Spilled product may create a slip and fall hazard.

METHODS FOR CLEANING UP: Spilled material should be absorbed onto an inert material and scooped up. Flush spill area with water. If slipperiness remains, apply more dry-sweeping compound.

DISPOSAL: Dispose of used absorbent according to federal, state, and local regulations.

SECTION 7: HANDLING AND STORAGE

HANDLING:
Avoid contact with eyes, skin, and clothing.
Avoid breathing product vapor or mist.
Use with adequate ventilation.
Wash thoroughly after handling.
Do not take internally.

Keep containers closed when not in use.
Ensure that containers are properly labeled.
Since empty containers retain product residues (vapors, liquid), observe all warnings and precautions listed for the product.
Have emergency equipment (for fires, spills, leaks, etc.) readily available

STORAGE: In order to maintain product integrity, store at room temperature in a dry, well-ventilated area away from incompatibles.

INCOMPATIBLE MATERIALS OF CONSTRUCTION: To avoid product degradation and equipment corrosion, do not use iron, copper, or aluminum containers or equipment.

NOTE: Flashpoint determinations on materials of this type are required by certain regulations and scientific standards to be performed using a Pensky-Martens Type Closed Cup Method. This method indicates a flashpoint greater than 200 ^{o}F (93.3 ^{o}C). Although there was no flashpoint detected below 200 ^{o}F (93.3 ^{o}C), by the Pensky-Martens Closed Tester Method, some flammable vapors were evolved during the test as evidenced by the enlargement of the test flame; therefore, caution should be exercised during storage and handling.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

EYE/FACE PROTECTION: Chemical splash goggles or face shield

SKIN PROTECTION: Chemical resistant gloves and protective clothing as appropriate to prevent skin contact.

RESPIRATORY PROTECTION: If airborne concentrations exceed published exposure limits, use a NIOSH approved respirator in accordance with OSHA respiratory protection requirements (29 CFR 1910.134)

ENGINEERING CONTROLS: A system of local and/or general exhaust is recommended to keep employee exposures below irritating levels or airborne exposure limits, whichever is lower. Local exhaust ventilation if preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the latest edition of the ACGIH document *Industrial Ventilation, A Manual of Recommended Practices* for details.

WORK PRACTICES: An eye wash station and safety shower should be accessible in the immediate area of use.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

pH: 6.0-8.0 (upon dilution in water)

SPECIFIC GRAVITY: ~1.0 g/mL

SOLUBILITY IN WATER: Limited by viscosity

BOILING POINT: ~177-260 ^{o}F (~80.6-126.7 ^{o}C)

FREEZING POINT: -0.4 ^{o}F (-18 ^{o}C)

VAPOR PRESSURE: Not available

VAPOR DENSITY (air=1): Not available

% VOLATILE (by weight): 64-65

VOLATILE ORGANIC CONTENT: ~21.2% (g/g)

PARTITION COEFFICIENT (n-octanol/water): Not available

APPEARANCE AND ODOR: Greyish-white emulsion with an ammonia type odor

SECTION 10: STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable

HAZARDOUS POLYMERIZATION: Will not occur

CONDITIONS TO AVOID: Incompatibles

INCOMPATIBILE MATERIALS: Strong oxidizers. This material reacts slowly with iron, copper, and aluminum, resulting in corrosion and product degradation.

DECOMPOSITION PRODUCTS: Thermal decomposition or combustion may produce carbon monoxide, carbon dioxide, ammonia, and nitrogen oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

ON PRODUCT/INGREDIENTS

Chemical Name	Oral LD50 (rat)	Dermal LD50 (rabbit)	Inhalation LC50 (rat)
Product	>5,000 mg/Kg estimated	>2,000 mg/Kg estimated	>20 mg/L-4H estimated
Petroleum distillates, hydrotreated light	>5,000 mg/Kg	>3,160 mg/Kg	Not available
Ethoxylated alcohols	1,600-2,500 mg/Kg	>2,000 mg/Kg	Not available

Toxicological information for the product is found under Section 3: HAZARDS IDENTIFICATION. Toxicological information on the regulated components of this product is as follows:

Petroleum distillates, hydrotreated light (CAS# 64742-47-8) has acute oral (rat) and dermal (rabbit) LD50 values of >5 g/Kg and >3.16 g/Kg, respectively. Prolonged or repeated skin contact tends to remove skin oils, possibly leading to irritation and dermatitis. Direct contact may cause eye irritation. Overexposure to high vapor concentrations, > ~700 ppm, are irritating to the eyes and respiratory tract and may cause headaches, dizziness, drowsiness, and other central nervous system effects, including death. Aspiration of minute amounts during ingestion or vomiting may cause mild to severe pulmonary injury and possibly death. In a 90-day oral gavage (rats) study at 100, 500, or 1,000 mg/Kg, no treatment-related mortalities were observed. There were no significant changes in body weights or food consumption in any dose groups. Increased liver weights were observed in male and female rats at 500 and 1,000 mg/Kg. Increased kidney weights were observed only in male rats at 500 and 1,000 mg/Kg. Testes weights were significantly elevated in male rats at 1,000 mg/Kg. Kidney effects, indicative of light hydrocarbon nephropathy, occurred in male rat kidneys at all dose levels. Histological findings of hepatocellular hypertrophy were seen in the livers of male rats at 1,000 mg/Kg and in female rats at 500 and 1,000 mg/Kg. All treatment-related effects were reversible within the 4-week recovery period. Observed kidney effects (including light hydrocarbon nephropathy and increased kidney weight) are a unique response by male rats to chronic hydrocarbon exposure, which the U.S. EPA has declared `not relevant to humans`. High-dose liver effects (including hepatocellular hypertrophy, or enlarged liver cells) are a direct consequence of the sustained high-fat `hydrocarbon diet`. The No Observed Adverse Effect Level (NOAEL) for this study was 1,000 mg/Kg.

Alcohols (C_{10-16}), ethoxylated toxicological properties have not been fully investigated. Based on similar materials, the acute oral (rat) LD50 is estimated to range from 1,600-2,500 mg/Kg and the acute dermal (rabbit) LD50 value is estimated to be >2,000 mg/Kg. Similar materials produced severe eye irritation and moderate skin irritation in studies with rabbits.

C_{12-14} alcohol ethoxylated toxicological properties have not been fully investigated. The oral LD50 (rat) of this mixture is expected to be consistent with the chemical family of ethoxylated alcohol surfactants, and range from 1,600-2,500 mg/Kg. The acute dermal (rabbit) LD50 value is estimated to be >2,000 mg/Kg. One expected component of this mixture was severely irritating to rabbit eyes (undiluted, Draize score = 60). This mixture is expected to be moderately irritating to skin, based on data reported for C_9-C_{11} 6EO: (primary irritation index) PII = 5.3/8.

Alcohols (C_{12-16}), ethoxylated toxicological properties have not been fully investigated. Based on similar materials, the acute oral (rat) LD50 is estimated to range from 1,600 – 2,500 mg/Kg and the acute dermal (rabbit) LD50 value is estimated to be >2,000 mg/Kg. Similar materials produced severe eye irritation and moderate skin irritation in studies with rabbits.

California Proposition 65 Warning (applicable in California only) - This product contains (a) chemical(s) known to the State of California to cause birth defects or other reproductive harm.

SECTION 12: ECOLOGICAL INFORMATION

On Product:

Test Material	Aquatic Toxicity Data
Product	48 hr LC50 (Water flea, Daphnia magna): 2.97 mg/L
Product	48 hr LC50 (Fathead Minnow, Pimephales promelas): 59.50 mg/L 96 hr LC50 (Fathead Minnow, Pimephales promelas): 22.36 mg/L
Product	48 hr EC50 (Marine copepod, Acartia tonsa): 7.4 mg/L
Product	10 day EC50 (Marine amphipod, Corophium volutator): 857 mg/L
Product	72 hr IC50 (Marine algae, Skeletonema costatum): ~27 mg/L

DEGRADATION:
Test: CO_2 Evolution: Modified Sturm (OECD 301B):
The large polymer size is incompatible with transport across biological membranes and diffusion; the bioconcentration factor is therefore considered to be zero. The polymeric ingredient is not readily biodegradable.

Test: Seawater Shake Flask Method (OECD 306):
Duration: 28 day
Procedure: Biodegradability in seawater
Result: 13%

SECTION 13: DISPOSAL

The information on RCRA waste classification and disposal methodology provided below applies only to the product, as supplied. If the material has been altered or contaminated, or it has exceeded its recommended shelf life, the guidance may be inapplicable. Hazardous waste classification under federal regulations (40 CFR Part 261 et seq) is dependent upon whether a material is a RCRA `listed hazardous waste` or has any of the four RCRA `hazardous waste characteristics.` Refer to 40 CFR Part 261.33 to determine if a given material to be disposed of is a RCRA `listed hazardous waste`; information contained in Section 15 of this MSDS is not intended to indicate if the product is a `listed hazardous waste'.

RCRA Hazardous Waste Characteristics: There are four characteristics defined in 40 CFR Section 261.21-261.24: Ignitability, Corrosivity, Reactivity, and Toxicity. To determine Ignitability, see Section 5 of this MSDS (Flash Point). For Corrosivity, see Sections 9 and 14 (pH and DOT corrosivity). For Reactivity, see Section 10 (Incompatible Materials). For Toxicity, see Section 2 (Composition). Federal regulations are subject to change. State and local requirements, which may differ from or be more stringent than the federal regulations, may also apply to the classification of the material if it is to be disposed.

The Company encourages the recycle, recovery and reuse of materials, where permitted, as an alternate to disposal as a waste. The Company recommends that organic materials classified as RCRA hazardous wastes be disposed of by thermal treatment or incineration at EPA approved facilities. The Company has provided the foregoing for information only; the person generating the waste is responsible for determining the waste classification and disposal method.

SECTION 14: TRANSPORTATION

DOT CLASSIFICATION:
ID Number: Not applicable
Proper Shipping Name: Not applicable
Class/Division: Not restricted
Packing Group: Not applicable
Label: None

SECTION 15: REGULATORY INFORMATION

OSHA Hazard Communication Status: Hazardous

TSCA: The ingredients of this product are listed on the Toxic Substances Control Act (TSCA) Chemical Substances Inventory.

CERCLA: EPA Hazardous Substances (40 CFR 302):

Chemical Name	CERCLA Reportable Quantity (RQ)
None	Not applicable

SARA TITLE III (Sections 302, 311, 312, and 313):

Section 302 Extremely Hazardous Substances (40 CFR 355):

Chemical Name	CAS#	RQ	TPQ
None			

Section 311 and 312 Health and Physical Hazards:

Immediate	Delayed	Fire	Pressure	Reactivity
yes	no	no	No	no

Section 313 Toxic Chemicals (40 CFR 372):

Chemical Name	CAS Number	Percent by Weight
None		

SECTION 16: OTHER INFORMATION

HMIS RATINGS: Health = 2 Flammability = 1 Reactivity = 0

Hazard Rating Scale: 0=Minimal; 1=Slight; 2=Moderate; 3=Serious; 4=Severe

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The preceding information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change, and the conditions of handling and use or misuse are beyond our control, Kroff Chemical Company, Inc. makes no warranty, either express or implied, with respect to the completeness or continuing accuracy of the information contained herein, and disclaims all liability for reliance thereon. User should satisfy himself that he has all current data relevant to his particular use.

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