
I. IDENTITY

PRODUCT NAME: DIELEKTROL® - VIIa FLUID SYNONYM(s): DK VIIa
 GENERAL USE: Insulating Oil for High-voltage Capacitors
 CHEMICAL FAMILY: Alkyl Aryl Alkanes CHEMICAL NAME: N.A.
 WHMIS CLASSIFICATION: Class D (Poisonous and Infectious Material) 2B Toxic Material >/=1%)

II. INGREDIENTS

<u>COMPONENT(s):</u>	<u>Percent</u>	<u>CAS Number</u>	<u>TWA</u>	<u>STEL</u>	<u>Oral LD₅₀ (rat)</u>
Benzyl Toluene	36-50 %	27776-01-8	N.E.	N.E.	3000 mg/kg
(Phenylethyl) benzene	50-62 %	38888-98-1	N.E.	N.E.	N.E.
Diphenylmethane	< 2 %	101-81-5	N.E.	N.E.	N.E.
Epoxide additive	< 1 %	2386-87-0	N.E.	N.E.	4000 mg/kg

III. PHYSICAL CHARACTERISTICS

APPEARANCE AND ODOR: Clear non-viscous liquid with aromatic odor.
 INITIAL BOILING POINT @ 760 mmHg: 270-290°C SPECIFIC GRAVITY (water=1) @ 20/20°C: 1.00
 MELTING POINT: <-65°C PERCENT VOLATILE BY VOLUME: N.E.
 FREEZING POINT: N.E. SOLUBILITY IN WATER @ 25°C: 5 ppm
 VAPOR DENSITY (Air=1): 6.3 EVAPORATION RATE (ether=1): Very Slow
 VISCOSITY @ 40.0°C: ca. 2.6 cSt REACTIVITY IN WATER: Stable
 POUR POINT, Max.: <-65°C VAPOR PRESSURE @ 70°F: 0.00005 psi
 pH: NEUTRAL COEFFICIENT OF WATER/OIL DISTRIBUTION: N.E.
 ODOR THRESHOLD: N.E.

IV. FIRE & EXPLOSION DATA

CONDITIONS OF FLAMMABILITY: N.E.

FLASH POINT (min): 136°C (277°F) (estimated)

AUTO-IGNITION TEMPERATURE: 450°C (842°F) (estimated)

FLAMMABLE LIMITS IN AIR % BY VOLUME: LOWER: N.D. UPPER: N.D.

EXTINGUISHING MEDIA: Water Fog, CO₂, Dry Chemical

SPECIAL FIRE FIGHTING PROCEDURES: In case of fire, wear full protective clothing and NIOSH approved positive pressure self-contained breathing apparatus (SCBA) with full face piece. Water or foam may cause frothing if it gets below the surface of the liquid and turns to steam. Water can be used to cool fire-exposed containers, to protect personnel and to disperse vapors and spills.

UNUSUAL FIRE & EXPLOSIVE HAZARDS: Decomposes at 400-1000°C releasing water and oxides of carbon in the presence of air. Combustible liquid (OSHA Class III-B)

V. REACTIVITY DATA

STABILITY:	Stable
CONDITIONS TO AVOID:	Heat, flame, prolonged storage at elevated temperatures.
INCOMPATIBILITY (MATERIALS TO AVOID):	Strong oxidizing materials may ignite this material.
HAZARDOUS DECOMPOSITION PRODUCTS:	Oxides of carbon including carbon monoxide gas and asphyxiants.
HAZARDOUS POLYMERIZATION:	Will not occur

VI. HEALTH HAZARDS

EMERGENCY OVERVIEW: WARNING! Direct contact with liquid or vapors may cause skin or eye irritation

PRINCIPAL ROUTES OF EXPOSURE: Eyes, skin contact, inhalation and ingestion.

WHMIS CLASSIFICATION:  Class D (Poisonous and Infectious Material)
2B Toxic Material $\geq 1\%$

SIGNS AND SYMPTOMS OF OVEREXPOSURE:

ACUTE OVEREXPOSURE:

EYE CONTACT: May cause transient eye irritation (tears, blurred vision and redness).

SKIN CONTACT: Direct skin contact may cause skin irritation (redness, swelling).

INGESTION: Single dose oral toxicity is low. Oral LD₅₀ for rats is $>2\text{g/kg}$. If aspirated (liquid in lungs), may cause lung damage due to chemical pneumonia, a condition caused by petroleum and petroleum-like solvents.

INHALATION: Overexposure to alkyl-substituted aromatics may produce central nervous depression, headaches, dizziness, discoordination, nausea and loss of appetite.

CHRONIC OVEREXPOSURE: N.D.

MEDICAL CONDITIONS GENERALLY RECOGNIZED AS BEING AGGRAVATED BY EXPOSURE: N.D.

VII. EMERGENCY & FIRST AID PROCEDURES

EYES: Irrigate immediately with large amounts of water until irritation subsides. Hold eyelids open when flushing. If irritation persists, get medical attention.

SKIN: Remove contaminated clothing and wash affected area promptly with soap and water. Get immediate attention if irritation develops and persists.

INGESTION: If swallowed, DO NOT induce vomiting. If aspirated (liquid enters the lungs), may cause lung damage due to chemical pneumonia, a condition caused by petroleum and petroleum-like solvents. Seek medical attention immediately.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration and get medical attention immediately.

VIII. ECOLOGICAL INFORMATION

TOXICITY TO FISH*:	<i>Brachidanio rerio</i> LC ₅₀ 8.4 mg/L (96 h) (OECD 203)
TOXICITY TO DAPHNIA:	1,1'-diphenylethane:1,2-diphenylethane: <i>Daphnia pulex</i> EC ₅₀ > 5.0 mg/L (48 h) (EPA 600/4-90/027) Benzyl toluene: EC ₅₀ 2.4 mg/L (48 h)
TOXICITY TO ALGAE:	N.D.
TOXICITY TO BACTERIA:	N.D.
BIODEGRADABILITY*:	This material is expected to be biodegradable at aerobic conditions.

* Data from similar product

IX. TOXICITY DATA

ORAL ACUTE TOXICITY*:	LD ₅₀ , Rat: Male 2.7 g/kg (14 days) Female 2.2 g/kg (14 days)
DERMAL ACUTE TOXICITY*:	LD ₅₀ , Rat: Male / Female >2 g/kg
SKIN SENSITIZATION*:	Guinea pig, Bueler: Non sensitizing
ACUTE DERMAL IRRITATION*:	Rabbit: Moderate irritant
ACUTE EYE IRRIATION*:	Rabbit: Minimal irritant
SUBACUTE TOXICITY*:	Rat, Oral, 28 days: No dead at maximum dose (1 g/kg); liver and kidney weight increase in high dose animals of both sexes. Possible liver effects in high dose groups. NOEL: 50 mg/kg/day
MUTAGENECITY*:	Ames Test: Negative <i>In vivo</i> Mouse Micronucleus Test: Negative

CARCINOGEN LIST BY NTP, IARC OR OSHA:

No component of this product present at levels greater than 0.1% is identified as a carcinogen by NTP IARC or OSHA.

* Data from similar product

X. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	Where vapors are generated, use a NIOSH approved organic respirator suitable to the airborne concentration.
EYE PROTECTION:	Safety glasses with side shields. Where contact with the liquid is likely, chemical goggles are recommended. If vapor exposure causes eye discomfort, use approved respirator. Use face shield if splashing is likely. Eye wash station should be located near to where splashing can occur.
PROTECTIVE GLOVES:	Use impervious gloves: nitrile or natural rubber gloves.
OTHER PROTECTIVE CLOTHING OR EQUIPMENT:	Wear clean, long-sleeved body-covering clothing to prevent skin contact. Launder contaminated clothing and shoes before reuse.

VENTILATION: Adequate ventilation is essential for handling the fluid. Due to high vapor density, down-flowing exhaust ventilation is recommended. No exposure limits have been established (OSHA PEL or ACGIH TLV).

XI. HANDLING AND STORAGE INFORMATION

HANDLING Areas of fluid handling should be well ventilated. Avoid contact with eyes. Avoid prolonged or repeated breathing of vapor and contact with skin.

STORAGE: Store in ventilated area, far from open flames and areas where danger of fire exists. Store in a cool place, preferably below 30°C . Store in sealed containers to preserve good electrical properties.

OTHER PRECAUTIONS: Follow good hygienic practices. Do not eat or smoke where material is used or stored. Empty containers may contain residue and may be hazardous. Do not pressurize, cut, weld, braze, solder, drill, grind or expose these containers to heat, sparks, flames or other sources of ignition. Do not attempt to clean. Dispose of container according to federal, state, provincial and local laws. Empty drums should be completely drained and properly bunged.

XII. ACCIDENTAL SPILL/RELEASE MEASURES

SMALL SPILL: Contain spill; absorb spill with an inert material such as clay, dry sand or earth. Place in a chemical waste container.

LARGE SPILL: Contain spilled liquid with sand or earth. Transfer absorbed waste materials into drums. Prevent runoff from entering storm sewers and ditches, which lead to natural waterways.

WASTE DISPOSAL CONSIDERATION: If discarded in purchased form, DK-VIIa would not be considered as a hazardous waste either by listing or by characteristic under Federal Hazardous Waste Regulations 40CFR261. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal whether a material containing the product or derived from the product should be classified as a hazardous waste (40CFR261.20-24) Please be advised that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations for proper disposal. Do not discharge into sewers, on the ground, or into any body of water.

XIII. REGULATORY INFORMATION

TRANSPORT INFORMATION: Not a hazardous material for Department Of Transportation (DOT) Shipping.

Not regulated under Transportation of Dangerous Goods Act.

Shipping Name Under 14th Edition of UN Model Regulations: UN 3082 Environmentally hazardous substance, liquid, n.o.s.

SARA HAZARD CATEGORY: This product has been, according to EPA Hazard Categories, promulgated under Section 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

- An Immediate Health Hazard (for skin and/or eye contact).

SARA 313 INFORMATION: This product contains no substances that are currently subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372.

CERCLA SUPERFUND: This product contains no Reportable Quantity (RQ) Substance that is currently listed under 40CFR302.4.

TOXIC SUBSTANCE CONTROL ACT (TSCA) and DOMESTIC SUBSTANCE LIST (DSL) The ingredients of this product are all on the TSCA inventory list and the DSL.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATING: [1] HEALTH
[1] FLAMMABILITY
[0] REACTIVITY
[B] PERSONAL PROTECTIVE EQUIPMENT

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM (HMIS) RATING: [1] HEALTH
[1] FLAMMABILITY
[0] REACTIVITY
[B] PERSONAL PROTECTIVE EQUIPMENT

(Least-0, Slight-1, Moderate-2, High-3, Extreme-4).

These values are obtained using the guideline or published evaluation prepared by the National Fire Protection Association (NFPA) or, if applicable, the National Paint and Coating Association (for HMIS ratings).

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N.A. - Not Applicable

N.E. - Not Established

N.D. - Not Determined

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