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INIT 07/14/94

FYI-94-[illegible]

Contains No CBI

[illegible]CIALTY CHEMICALS

PRODUCT [illegible]

[illegible] is one of the new generation of dielectric fluids that offers exceptional environmental, electrical, and thermal characteristics. Chemically, SURE SOL®-250 is isopropylbiphenyl. It is available in commercial quantities.

The electrical properties for SURE SOL®-250 (as a capacitor dielectric fluid) offer excellent endurance to high transient or continuous voltage stress at extremes in temperature. Other properties include exceptional dielectric strength, a high resistance to gassing at high voltage stress, a low dissipation factor over a wide temperature range and excellent heat stability at elevated temperatures.

In addition to the fine electrical and thermal properties, SURE SOL®-250 is biodegradable and non-toxic.

[illegible]	METHOD	SPECIFICATIONS MIN.	SPECIFICATIONS MAX.	TYPICAL
[illegible]				
[illegible]	*D-2306		0.05	0.01
Monoisopropylbiphenyls	*D-2306	94		95
Meta Isomer	*D-2306	55		59
Para Isomer	*D-2306		42	37
Di + Triisopropylbiphenyls	*D-2306			6
Heavier than Triisopropylbiphenyls	*D-2306		0.05	.01
Biphenyl	*D-2306		0.2	0.1
Water, ppm	D-1744		100	50
Sulfur, ppm	D-3120		20	1
Peroxide, ppm	D-1022		10	5
Hydrolyzable Chlorine, ppm	D-2441		1	<1
General				
Viscosity @ 100° F., SUS	D-88	40	43	41
Flash, COC °F	D-92	293		300
Fire Point, °F	D-92	302		310
Density @ 20° C	DMA-45	0.980	0.990	0.9879
Color, ASTM	D-1500		0.5	<0.5
Refractive Index @ 20° C	D-1807	1.583	1.586	1.585
Acidity, mg KOH/g	D-974		0.02	ND
Pour, ° F	D-97		-51	-60
Vapor Pressure @ 100° C Torr			1.2	
Gravity, °API	D-287			12.0
Electrical				
Dielectric Strength, KV	D-877	45		
Electrical Resistivity @ 100° C and [illegible] V.D.C., [illegible]	D-1169	.[illegible] x 10+12		
Dielectric Constant @ [illegible]° C	D-924	2.50	2.60	
[illegible] @ [illegible]° C and 60 Hz	D-924		[illegible] ([illegible])	
			0.5% ([illegible])	

*[illegible]

[illegible]

KOCH CHEMICAL COMPANY

MATERIAL SAFETY DATA SHEET

(Approved by U.S. Department of Labor "Essentially Similar" to Form OSHA-20)

A DIVISION OF KOCH REFINING COMPANY POST OFFICE BOX 2302, WICHITA, KANSAS 67201

CAS # 25640-78-2

I. Manufacturer's Name: Koch Refining Co. (Corpus Christi, TX)
Address (number, street): P.O. Box 2608
(City, state, zip code): Corpus Christi, TX 78403
Emergency Telephone Number: 512-241-4811
Information Supplied by: Dale F. Janes
Date: 4/1982 Title: Industrial Hygienist

Product Trade Name: SURE SOL®-250
Chemical & Synonyms: Isopropyl Biphenyls
Chemical Family: Alkyl Biphenyl Formula: See ingredients
National Fire Protection Association 704 Signal (or estimate)
Health 1 Fire 1 Reactivity 0 Specific Hazard ____

II. HAZARDOUS INGREDIENTS

MATERIAL	%	TLV (Units)	MATERIAL	%	TLV (Units)
Mono-Isopropyl Biphenyl	95	See V7, below			
Di & Tri-Isopropyl Biphenyl	5	See V7, below			

III. PHYSICAL DATA

a. Boiling range (°F): 540 → 600
b. Vapor pressure (mm Hg): 0.01 @ 25°C
c. Vapor density (Air = 1): 6+
d. Solubility in water (%): Nil
e. Specific gravity (H_2O = 1): 0.988
f. Per cent volatile by volume: Nil
g. Evaporation rate (____ = 1): Not determined
h. Appearance & Odor: Clear liquid Fragrant Aromatic Odor

IV. FIRE AND EXPLOSION HAZARD DATA

a. Flash point (state method, °F): 293 COC Minimum
b. Ignition temperature (°F): 860
c. Flammable limits in air, LEL: Not UEL: Determined
d. Extinguishing media: Water fog, CO_2, Dry Chemicals
e. Special fire fighting procedures: Wear self-contained breathing gear when fire-fighting in confined spaces.
f. Unusual fire and explosion hazards:

V. HEALTH HAZARD DATA

ASPIRATION HAZARD IF SWALLOWED!

a. Physiological Properties:

1. Acute oral toxicity (LD_{50} if available): 24-hour rat LD_{50} is greater that 15 grams per kilogram of body weight. 14-Day rat LD_{50} is 4.65 ± 0.64 grams per kilogram of body weight.
2. Local effects to eyes: Mild to moderate irritation.
3. Local effects to skin: Prolonged or repeated contact may result in mild irritation.
4. Sensitizing effects: No Data, but this product is not expected to be a sensitizing material.
5. Dermal absorption (LD_{50} if available): No Data, but absorption is expected to be minimal. No human data, but estimated to be slightly irritating.
6. Inhalation effects (LC_{50} if available): No deaths in rats exposed to 20.8 mg per liter for four hours.
7. Threshold Limit Value (or estimate): Not listed by ACGIH or OSHA. Permissible exposure limit estimated at 50 ppm parts of air.

Product Name SUPX SOLo-250

V.

b. Emergency and First Aid Procedures:

1. Ingestion: DO NOT INDUCE VOMITING! Give liquids to ease gastric irritation. Obtain physician.
2. Eye Contact: Flush eyes with plenty of warm water for 15 minutes.
3. Skin Contact: Wash with soap and water.
4. Inhalation: Remove victim to fresh air.

Other Health Data: Remove contaminated clothing and launder before re-use.

VI. *REACTIVITY DATA*

a. Stability: Stable X Unstable ____ Conditions to avoid: N/A

b. Incompatible Materials: Strong oxidizing materials may ignite this product.

c. Hazardous Decomposition Products: Carbon monoxide and asphyxiants.

d. Hazardous Polymerization: May occur ____ Will not occur X Conditions to avoid: N/A

VII. *SPILL OR LEAK PROCEDURES*

a. Steps to be taken for spill or leak: Absorb in a suitable medium.

b. Waste disposal methods: Chemical waste disposal is governed by the Resource Conservation and Recovery Act, as well as by other local, state, and federal laws and regulations.

VIII. *SPECIAL PROTECTION INFORMATION*

a. Respiratory protection (Specify type) requirements: Ventilation if necessary, is preferred to respiratory protection.

b. Ventilation requirements (local exhaust, general dilution, special): Ventilate to comply with 50 PPM exposure limit estimate.

c. Protective gloves required: Recommended when prolonged skin contact cannot be avoided.

d. Eye protection required: Recommended.

e. Other required equipment: None known.

IX. *SPECIAL PRECAUTIONS*

a. Precautionary label required? If yes, please attach. No

b. Precautions to be taken in handling and storing: Handle as above. Storage per NFPA Class III B.

c. Other precautions: None known.

IMPORTANT NOTICE: This information relates only to the specific product or material designated and may not be valid for such product or material used in combination with any other materials or products or any process. This information is, to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use. We do not accept liability for any loss or damage that may occur from the use of this information, nor do we offer any warranty against patent infringement.

AMTEK CORP.

CERTIFICATE OF AUTHENTICITY

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Data produced 7 10 97 Marcia Tubolino

(Month) (Day) (Year) Camera Operator

Place Syracuse New York

(City) (State)