Indiana Michigan
Power Company
500 Circle Drive
Buchanan, MI 49107 1395

INDIANA MICHIGAN POWER

November 20, 2003

AEP:NRC:2401-09
10 CFR 50.4

Docket Nos: 50-315
50-316

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop O-P1-17
Washington, D.C. 20555-0001

Donald C. Cook Nuclear Plant Units 1 and 2
EHC HYDRAULIC FLUID SPILL
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM AND
GROUNDWATER DISCHARGE AUTHORIZATION NOTIFICATION

Indiana Michigan Power Company is the holder of National Pollutant Discharge Elimination System (NPDES) permit MI0005827 and Groundwater Discharge Authorization (GDA) permit M00988 for the Donald C. Cook Nuclear Plant (CNP). Appendix B, Part II, Section 3.2 of the Environmental Technical Specifications to Facility Operating Licenses DPR-58 and DPR-74 requires violations of the NPDES Permit to be reported to the Nuclear Regulatory Commission (NRC) by submittal of copies of the reports required by the NPDES Permit.

In a letter dated November 20, 2003, the Michigan Department of Environmental Quality (MDEQ) was notified that approximately ½-liter of Fyrquel® EHC Fire Resistant Hydraulic Fluid was released to the turbine room sump and then to the on-site absorption pond through discharge Outfall 00D. A sustained high wind condition from November 11-13, 2003, caused the vapor extraction circuit to malfunction, forcing an abnormal amount of EHC fluid from the drain line into an overflow pan. The pan was designed to collect minor leakage from the extraction circuit and was overwhelmed when the system malfunctioned. Approximately 5 gallons leaked to the floor inside of the turbine building. A very small amount of the fluid (approximately ½-liter) reached a floor drain, where it was released through discharge Outfall 00D. An immediate notification to the Pollution Emergency Alert System was made on November 13, 2003, at 2330 hours after verification of product loss to the floor drain.

C001

Written notification was provided to the MDEQ per Part II, Section C.7 of the NPDES Permit and Part II, Section A.7 of the GDA permit. In accordance with the Environmental Technical Specifications, a copy of the report to the MDEQ is being provided to the NRC as an attachment to this letter.

This letter contains no new commitments.

Should you have any questions or concerns regarding this notification, please contact John P. Carlson, Environmental Manager, at (269) 465-5901, extension 1153.

Sincerely,

John A. Zwolinski
Director, Design Engineering and Regulatory Affairs

JEN/jen

attachment

c: J. L. Caldwell – NRC Region III
K. D. Curry - AEP Ft. Wayne, w/o attachment
J. T. King – MPSC, w/o attachment
MDEQ - WHMD/HWRPS, w/o attachment
NRC Resident Inspector
M. A. Shuaibi - NRC Washington, DC

ATTACHMENT TO AEP:NRC:2401-09

NOTIFICATION TO MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

Indiana Michigan
Power Company
500 Circle Drive
Buchanan, MI 49107-1395

INDIANA MICHIGAN POWER

Mr. John Vollmer, District Supervisor
Michigan Department of Environmental Quality
Surface Water Quality Division
7953 Adobe Road
Kalamazoo, Michigan 49009

November 20, 2003

Dear Mr. Vollmer:

Subject: Donald C. Cook Nuclear Plant
NPDES Permit No. MI 0005827

Donald C. Cook Nuclear Plant
Groundwater Discharge Authorization M 00988

This notification is made pursuant to Cook Nuclear Plant's NPDES Permit MI 0005827, Part II. Section C.7, Spill Notification.

This notification is made pursuant to Cook Nuclear Groundwater Discharge Authorization M 00988, Part II. Section A.7, Spill Notification.

On November 13, 2003 at approximately 2300 hrs, approximately ½ liter of Fyrquel® EHC Fire Resistant Hydraulic Fluid was released to the Turbine Room Sump and then to the on-site absorption pond through Outfall 00D.

A sustained high wind condition with maximum gusts up to 69 mph from 11/11/03 to 11/13/03 caused the vapor extraction circuit to malfunction, forcing an abnormal amount of EHC from the drain line onto an overflow pan. The pan was designed to collect minor leakage from the extraction circuit. The pan was overwhelmed when the system malfunctioned. Approximately five gallons leaked to the floor inside of the turbine building. A very small amount of the fluid reached a floor drain, where it was released through Outfall 00D. An immediate notification to the Pollution Emergency Alert System was done on 11/13/03 @2330 hrs, after verification of product loss to the floor drain.

This fluid is denser than water, and will sink to the bottom of the sump. This characteristic, along with the small amount of product lost, made the spill non-recoverable. Plant personnel were dispatched to contain and clean up the spill.

Weather conditions at the plant have returned to normal, and the vapor extraction circuit is operating properly. The drain line is currently funneled to a 55 gallon drum in a containment

area where potential leakage would be collected. The preventive action investigation is underway and a permanent solution to this issue will take place when the Unit is taken off line. This spill does not pose a threat to the environment, public health or safety.

Should you have any questions, please contact me at (269) 465-5901 extension 1153.

Sincerely,

John P. Carlson
Environmental Manager

Enclosure

c: Mr. Greg Danneffel, MDEQ - Kalamazoo
USNRC per Appendix B. T. S. Page 2

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this and all attached documents; and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

J. N. Jensen
Site Vice President

Re: Cook Nuclear Plant
NPDES Permit No. MI 0005827
Groundwater Discharge Authorization M 00988

bc: J. F. Butcher
J. P. Carlson
M. J. Finissi
C. E. Hawk
J. N. Jensen
D. S. Naughton
M. K. Nazar
W. H. Schalk
S. Vazquez
B. W. Watson
W. D. Wood
T. Woods
B. K. Zordell
NDM (2003-1724), Mail Zone 1
MDEQ File

Akzo Nobel Functional Chemicals LLC

MATERIAL SAFETY DATA SHEET

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

PRODUCT NAME
FYRQUEL EHC

CHEMICAL NAME
Mixture

SYNONYM
Mixture

CHEMICAL FORMULA
Mixture

CAS #
MIXTURE

CHEMICAL FAMILY
Aryl phosphate

MANUFACTURERS NAME
Akzo Nobel Functional Chemicals LLC

PRODUCT/TECHNICAL INFORMATION
1-800-666-1200

ADDRESS
5 Livingstone Avenue
Dobbs Ferry, NY 10522

MEDICAL/HANDLING EMERGENCY
1-914-693-6946

COUNTRY
USA

TRANSPORTATION EMERGENCY
CHEMTREC 1-800-424-9300

PRODUCT USE
Fire-resistant hydraulic fluid

REVISION DATE
2/06/2003

ISSUE DATE
6/19/1995

REVISION NO.
009

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE DESCRIPTION	PERCENT	CAS#
Trixylenyl phosphate	40.000- 50.000	25155-23-1
t-Butylphenyl diphenyl phosphate	15.000- 21.000	56803-37-3
Bis(t-butylphenyl) phenyl phosphate	15.000- 21.000	65652-41-7
Tri(t-butylphenyl) phosphate	5.000- 9.000	78-33-1
Triphenyl phosphate	7.500- 15.000	115-86-6

SECTION 3. HAZARDS IDENTIFICATION

Appearance & Odor
Clear liquid; essentially odorless.

STATEMENT OF HAZARDS
May cause mild skin and eye irritation.
Inhalation of vapor or mist may cause respiratory tract irritation.
May cause nerve damage if inhaled, swallowed, or absorbed through the skin.
May cause cholinesterase inhibition.

Fire & Explosion Hazards
This product is not defined as flammable or combustible. It is self-extinguishing once the source of ignition is removed. The material is not sensitive to static discharge or physical impact. It may decompose under fire conditions.

Primary Route of Exposure
Skin contact and inhalation are the primary routes of exposure to this product.

Inhalation Acute Exposure
Inhalation of vapors or mists may cause respiratory tract irritation. Inhalation may cause cholinesterase inhibition and nerve damage (see Section 4, "Note to Physician," for signs and symptoms of these effects).

SECTION 3. HAZARDS IDENTIFICATION (CONTINUED)

Skin Contact - ACUTE
Skin contact may cause mild irritation.
May cause nerve damage and cholinesterase inhibition if absorbed through the skin. See Section 4, "Note to Physician," for signs and symptoms of these effects.

Eye contact - ACUTE
Eye contact may cause mild irritation.

Ingestion - ACUTE
Ingestion may cause gastrointestinal tract irritation and diarrhea. May cause cholinesterase inhibition and nerve damage. See Section 4, "Note to Physician," for signs and symptoms of these effects.

CARCINOGENICITY

IARC	....NO	OSHA	....NO
NTP	....NO	ACGIH	....NO

SECTION 4. FIRST AID MEASURES

Inhalation First Aid
If inhaled, remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Skin Contact - First Aid
Immediately remove contaminated clothing and shoes. Under a safety shower, wash all affected areas with soap and plenty of water for at least 15 minutes. Get medical attention. Wash clothing before reuse. Thoroughly clean or destroy contaminated shoes.

Eye Contact - First Aid
Immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lenses, if worn. Hold the eyelids apart during the flushing to ensure rinsing of the entire surface of the eye and lids. Get medical attention if irritation develops and persists.

Ingestion - First Aid
Get medical attention by calling a physician or a poison control center immediately. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, keep head below hips to reduce the risk of aspiration. Never give anything by mouth to an unconscious person.

Medical conditions aggravated
Persons with pre-existing neuromuscular disorders may be at an increased risk from exposure to this material.

Note to Physician
This product contains trixylenyl phosphate and triphenyl phosphate. Overexposure to this product by ingestion, inhalation, or through skin absorption may produce abdominal pain, nausea and vomiting. Delayed effects such as peripheral neuropathy and cholinesterase inhibition may result. Symptoms of peripheral neuropathy may include: diarrhea, conjunctivitis, laryngitis, rhinitis, pharyngitis, distal extremity paresthesias, and cramping pain in the calves. Later symptoms may include: flaccid paralysis followed by spasticity of the lower extremities resulting in a spastic gait.
Symptoms of cholinesterase inhibition may include: headache, nausea, sweating, numbness and tingling of the hands and feet, salivation, muscle twitching, tremors, incoordination, blurred vision, tears, abdominal cramps, diarrhea, and chest discomfort. In cases of

SECTION 4. FIRST AID MEASURES (CONTINUED)

cholinesterase inhibition, atropine by injection is antidotal. Pralidoxime chloride (2-PAM; Protopam chloride) is also antidotal when administered early and in conjunction with atropine.

SECTION 5. FIRE FIGHTING MEASURES

FLASH POINT
225.00 F 107.22 C
GREATER THAN

FLASH METHOD
SETA CLOSED CUP

AUTO IGNITION TEMPERATURE
1030.00 F 554.44 C

UPPER EXPLOSION LIMIT
N/D

LOWER EXPLOSION LIMIT
N/D

Extinquishing Media
Use water fog or spray, dry chemical, foam or carbon dioxide extinguishing agents.

Fire Fighting Procedures
As in any fire, prevent human exposure to fire, smoke, fumes or products of combustion. Evacuate non-essential personnel from the fire area. Firefighters should wear full-face, self-contained breathing apparatus and impervious protective clothing. If possible, move containers from the fire area. If not leaking, keep fire exposed containers cool with a water fog or spray to prevent rupture due to excessive heat. High pressure water may spread product from broken containers increasing contamination or fire hazard.

Dike fire control water for later disposal. Do not allow contaminated water to enter waterways.

Fire & Explosion Hazards
This product is not defined as flammable or combustible. It is self-extinguishing once the source of ignition is removed. The material is not sensitive to static discharge or physical impact. It may decompose under fire conditions.

Other Fire + Explosion Hazards
No other fire or explosion hazards of this product are known.

Hazardous Products/Combustion
Decomposition of this product under fire conditions can produce carbon monoxide, phosphorus oxides, and organic decomposition products.

NFPA HEALTH RATING
2

NFPA FLAMMABILITY RATING
1

NFPA REACTIVITY RATING
0

NFPA OTHER
ND

SECTION 6. ACCIDENTAL RELEASE MEASURES

Cleanup
Isolate spill area and restrict nonessential personnel. All personnel involved in spill cleanup should follow appropriate industrial hygiene practices (see Section 8). Stop source of spill if possible without being injured. Dike area to prevent spill from spreading. Soak up liquid with a suitable absorbent such as clay, sawdust, or kitty litter. Sweep up absorbed material and place in a chemical waste container for disposal. CAUTION! Spill

SECTION 6. ACCIDENTAL RELEASE MEASURES (CONTINUED)

area may be slippery. Cover spill area with a slurry of powdered household detergent and water. Use stiff brush to work slurry into cracks and crevices. Allow to stand for 2-3 minutes, then flush with water. Dike wash water for later disposal. Do not allow contaminated water to enter waterways or sewers.

SECTION 7. HANDLING AND STORAGE

Handling
Wear protective clothing including chemical goggles and/or a face shield and rubber gloves when handling this product to avoid eye and skin contact. Handle in a well-ventilated area. Avoid inhalation of vapor or mist. Wash thoroughly after handling.

Containers should be located in an area where they can be rotated regularly (first in, first out) and visually inspected for dents and bulging on a weekly basis. If bulged drums are found, they should be vented in an open area by removing the two-inch bung very slowly. The two-inch bung should not be removed completely until there is no sound of pressure being released. The bung can then be removed, but this should be done slowly and with care.

Emptied container may retain product residues. Follow all warnings and precautions even after container is emptied.

Storage
Store away from foodstuffs and animal feed. Containers should be stored in a cool, dry, well ventilated area away from flammable or oxidizing materials and sources of heat or flame. Exercise due caution to prevent damage to or leakage from the container.

Prolonged storage at elevated temperatures under wet alkaline or acidic conditions should be avoided to assure product integrity. Care should be taken to prevent moisture condensation in the container. Carbon steel is the preferred material of construction for storage containers. The product is normally shipped in unlined tank cars, trucks and drums.

MAXIMUM STORAGE TEMPERATURE
149.00 F 65.00 C
Higher in absence air/moisture

General Comments
At temperatures below 4.4 C (40 F), the viscosity characteristics are such that improved pumping rates may be achieved by warming. Temperatures from 27-37.8 C (80-100 F) provide good rates of flow.

This product can be stored and transported in equipment constructed of mild steel.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection
Use a NIOSH-approved organic vapor/acid gas respirator (OVAG) with dust, mist, and fume filters to reduce potential for inhalation exposure if use conditions generate vapor, mist, or aerosol and adequate ventilation (e.g., outdoor or well-ventilated area) is not available. Where exposure potential necessitates a higher level of protection, use a NIOSH-approved, positive-pressure, pressure demand, air-supplied respirator. When using respirator cartridges or canisters, they must be changed frequently (following each use or at the end of the workshift) to assure breakthrough exposure does not occur.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION (CONTINUED)

Skin Protection
Skin contact with the liquid or its aerosol must be prevented through the use of suitable protective clothing, gloves, and footwear selected with regard for use condition exposure potential. Combination neoprene over natural latex gloves are recommended.

Eye Protection
Eye contact with the liquid or its aerosol must be prevented through the use of chemical safety goggles and/or a face shield selected with regard for use condition exposure potential.

Ventilation protection
At elevated processing temperatures or in the event that use conditions generate airborne vapor, aerosol, or mist, the material should be handled in a well-ventilated area. Where adequate ventilation is not available, respiratory protection should be used.

Other Protection
Safety showers, with quick opening valves which stay open, and eye wash fountains, or other means of washing the eyes with a gentle flow of cool to tepid tap water, should be readily available in all areas where this material is handled or stored. Water should be supplied through insulated and heat-traced lines to prevent freeze-ups in cold weather. Long sleeved clothing may be used to minimize skin contact.

All food and smoking materials should be kept in a separate area away from the storage/use location. Eating, drinking and smoking should be prohibited in areas where there is a potential for significant exposure to this material. Before eating, drinking or smoking, hands and face should be thoroughly washed.

APPLICABLE EXPOSURE LIMITS
Other than any exposure limits which may be displayed in Section 8, there are no other known exposure limits applicable to this product or its components.

EXPOSURE LIMITS/REGULATORY INFORMATION (IN MG/M3)

SUBSTANCE DESCRIPTION	REG. AGCY	PEL	TLV	TWA	STEL	CEIL
Trixylenyl phosphate						
	OSHA	N/D	N/D	N/D	N/D	N/D
	ACGIH	N/D	N/D	N/D	N/D	N/D
	NIOSH	N/D	N/D	N/D	N/D	N/D
	SUPPLIER	N/D	N/D	N/D	N/D	N/D
t-Butylphenyl diphenyl phosphate						
	OSHA	N/D	N/D	N/D	N/D	N/D
	ACGIH	N/D	N/D	N/D	N/D	N/D
	NIOSH	N/D	N/D	N/D	N/D	N/D
	SUPPLIER	N/D	N/D	N/D	N/D	N/D
Bis(t-butylphenyl) phenyl phosphate						
	OSHA	N/D	N/D	N/D	N/D	N/D
	ACGIH	N/D	N/D	N/D	N/D	N/D
	NIOSH	N/D	N/D	N/D	N/D	N/D
	SUPPLIER	N/D	N/D	N/D	N/D	N/D

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION (CONTINUED)

Tri(t-butylphenyl) phosphate						
	OSHA	N/D	N/D	N/D	N/D	N/D
	ACGIH	N/D	N/D	N/D	N/D	N/D
	NIOSH	N/D	N/D	N/D	N/D	N/D
	SUPPLIER	N/D	N/D	N/D	N/D	N/D
Triphenyl phosphate						
	OSHA	3.0000	N/D	N/D	N/D	N/D
	ACGIH	N/D	3.0000	N/D	N/D	N/D
	NIOSH	N/D	N/D	3.0000	N/D	N/D
	SUPPLIER	N/D	N/D	N/D	N/D	N/D

LEGEND:

EXPOSURE LIMIT DESCRIPTIONS
CEIL Ceiling Exposure Limit
PEL Permissible Exposure Limit
STEL Short Term Exposure Limit
TLV Threshold Limit Value
TWA Time Weighted Average
N/D = Not Determined

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

VAPOR PRESSURE (mm Hg)
EQ 0.17 mm Hg @ 20C (68F)

VAPOR DENSITY (Air = 1.0)
N/D

EVAPORATION RATE
N/D

VOLATILE %
N/D

BOILING POINT
N/D F N/D C

ODOR THRESHOLD (ppm)
N/D

SPECIFIC GRAVITY
EQ 1.145 @ 15/15C (60/60F)

BULK DENSITY
. Not Applicable

SOLUBILITY IN WATER
LT 0.72 ug/ml

SOLUBILITY IN OTHER SOLVENTS
Not Determined

COEFFICIENT OF OIL/WATER
N/D

POUR POINT
0.00 F -17.77 C

MELTING POINT
N/D F N/D C

pH FACTOR
N/D

CLOUD POINT
N/D F N/D C

FLASH POINT
225.00 F 107.22 C
GREATER THAN

FLASH METHOD
SETA CLOSED CUP

UPPER EXPLOSION LIMIT
N/D

LOWER EXPLOSION LIMIT
N/D

AUTO IGNITION TEMPERATURE
1030.00 F 554.44 C

Other
Viscosity @ 37.8 C (100 F) = 220 SUS.

SECTION 10. STABILITY AND REACTIVITY

Stability
This product is stable at ambient temperatures and atmospheric pressure. It is not self-reactive and is not sensitive to static discharge or physical impact.

Incompatibilities
This product is incompatible with strong oxidizers, strong acids and strong alkalis. It hydrolyzes slowly at ambient temperatures in acidic or alkaline aqueous solutions.

Polymerization
Hazardous polymerization is not expected to occur.

Decomposition
Under wet acidic or alkaline conditions this product hydrolyzes slowly and nonviolently to form phenol, substituted phenols, and aryl phosphoric acids.

Vapors may decompose at elevated temperatures to release harmful materials.

Conditions to Avoid
Prolonged storage at elevated temperatures (above 65.6 C; 150 F) should be avoided.
Avoid contact with strong acids, strong bases, and strong oxidizers.

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicological - Inhalation
The acute inhalation LC50 (rat) for a similar product following a 4-hour exposure was > 3.1 mg/l, the highest attainable concentration. No mortalities were observed at this level. Inhalation of this product may cause nerve damage, cholinesterase inhibition, and respiratory tract irritation.

Inhalation Chronic Exposure
Although data are not available for this material, prolonged or repeated inhalation exposure may cause nerve damage, cholinesterase inhibition, and respiratory tract irritation.

Toxicological - Dermal
Practically non-toxic; the acute dermal LD50 (rabbit) for a similar material is greater than 2000 mg/kg. The acute dermal LD50 (rabbit) for trixylenyl phosphate and triphenyl phosphate is > 2000 mg/kg and > 4640 mg/kg, respectively.

Skin contact may cause nerve damage and cholinesterase inhibition.

This product is expected to be a mild skin irritant based on component and similar product data.

Skin Contact - CHRONIC
Although data are not available for this material, prolonged and/or repeated skin contact may cause nerve damage or cholinesterase inhibition.

Toxicological - Eye
This product is expected to be a mild eye irritant based on component and similar product data.

SECTION 11. TOXICOLOGICAL INFORMATION (CONTINUED)

Toxicological - Ingestion
Practically non-toxic; the acute oral LD50 (rat) for a similar material is > 5000 mg/kg. The acute oral LD50 (rat) for trixylenyl phosphate and triphenyl phosphate is > 5000 mg/kg and > 4640 mg/kg, respectively. Ingestion may cause nerve damage and cholinesterase inhibition.

Ingestion - CHRONIC
Although data are not available for this material, repeated ingestion may cause cholinesterase inhibition and nerve damage.

Daily ingestion by rats of 100, 400, or 1600 ppm of a similar product in the diet for three months produced increases in the liver and adrenal gland weights in females and increases in the liver weights of males at the highest dose level. However, no histopathological changes were noted.

CARCINOGENICITY/MUTAGENICITY
The carcinogenic/mutagenic properties of this material have not been determined. Neither this material nor its components have been classified as a carcinogen or suspect carcinogen by IARC, NTP, OSHA, or ACGIH. A similar product was not mutagenic in the Ames test. It did not induce an increase in chromosomal aberration or sister chromatid exchanges in mouse lymphoma cells and did not induce morphological transformations in BALB/3T3 cells. Triphenyl phosphate, a product component, was not mutagenic in the Ames test.

REPRODUCTIVE EFFECTS
Daily administration of a similar product at 100, 400, or 1000 mg/kg to rats on days 6 through 20 of gestation demonstrated maternal toxicity (increased liver weights and reduced food consumption at the high-dose) and feto-toxicity (reduction in fetal body weight at the high-dose) but no indications of teratogenicity were observed. Triphenyl phosphate, a product component, was not teratogenic in rats at dietary levels of up to 10 mg/kg administered through mating and gestation.

NEUROTOXICITY
Neurotoxicity data are not available for this product. An oral dose of 1.14 g/kg of trixylenyl phosphate did not produce significant inhibition of brain neurotoxic esterase. Therefore, acute delayed neurotoxicity would not be expected at this dose level. Acute oral administration of a high dose of a similar material, 11.4 g/kg, to hens produced 85% inhibition of plasma cholinesterase and 94% inhibition of brain neurotoxic esterase. Hens observed for three weeks following administration of this high dose showed motor incoordination starting on the tenth day and increasing in severity with time.

Oral administration of 420 or 2000 mg/kg/day of triphenyl phosphate for 5 days to hens did not cause significant inhibition of neurotoxic esterase or clinical signs of neurotoxicity. Hens dosed twice orally 3 weeks apart with 11.7 g/kg of a similar product did not show signs of delayed neurotoxicity. In a separate study, a similar product inhibited plasma cholinesterase but not neurotoxic esterase.

Other Toxicological Effects
No other toxic effects for this product are known.

SECTION 11. TOXICOLOGICAL INFORMATION (CONTINUED)

Target Organs
Overexposure to this material may affect the skin, eyes, respiratory tract, and central and peripheral nervous system.

SECTION 12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION
Data are not available for this product; however, the following data are available for a product component and a similar product:
96-hr. LC50 (Rainbow trout) = > 100 mg/l trixylenyl phosphate (practically non-toxic)
96-hr. LC50 (Sheepshead minnow) = > 1.3 mg/l similar product (highest concentration tested)
96-hr. LC50 (Mysid shrimp) = > 1.0 mg/l similar product (highest concentration tested)

DISTRIBUTION
Triaryl phosphate esters, including triphenyl phosphate, exhibit low aqueous solubility, have moderate potential for bioconcentration, and readily undergo biodegradation.

CHEMICAL FATE
Chemical fate information on this product is not known.
Triphenyl phosphate, a product component, is readily biodegradable.
Hydrolysis rates for triphenyl phosphate are:
at pH 9.5: half-life: 0.23 days
at pH 8.2: half-life: 7.5 days

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal
Material that cannot be used or chemically reprocessed should be disposed of in accordance with all applicable regulations.
Product containers designed for single use should be thoroughly emptied before disposal.
NOTE! State and local regulations may be more stringent than federal.

This product, if unused, does not meet the EPA's RCRA criteria as either a listed or a characteristic hazardous waste. Generators of wastes are required to evaluate their materials for compliance with RCRA and local disposal procedures and regulations.

CONTAINER DISPOSAL
Emptied containers may retain residues of this material. Follow all warnings and precautions even after the container is emptied.

Containers should be drained of residual material before disposal. Emptied containers should be disposed of in accordance with all applicable laws and regulations.

SECTION 14. TRANSPORT INFORMATION

SHIPPING DESCRIPTION
FOLLOWING SHIPMENTS ARE NOT REGULATED FOR TRANSPORT:
Surface transport within North America (U.S.A., Canada, Mexico) in packages of 119 gallons or less (non-bulk).
Air transport within North America (U.S.A., Canada, Mexico).

FOLLOWING SHIPMENTS ARE REGULATED FOR TRANSPORT (SHIPPING DESCRIPTION FOLLOWS):
Bulk surface shipments within North America (> 119 gallons).

SECTION 14. TRANSPORT INFORMATION (CONTINUED)

Water transport within North America (U.S.A., Canada, Mexico).
Export shipments (excluding non-bulk shipments to Canada and Mexico and shipments via air transport to Canada and Mexico).

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Triphenyl phosphate/tert-butylated triphenyl phosphates mixtures containing 10% to 48% triphenyl phosphates)
9, UN3082, PG III
NORTH AMERICAN EMERGENCY RESPONSE GUIDE NO. 171

REQUIRED LABELS
PRIMARY LABEL: Class 9
SUBSIDIARY RISK LABEL: Marine pollutant

ENVIRON. HAZARDOUS SUBSTANCE
This product contains triphenyl phosphate and trixylenyl phosphate which are Marine Pollutants as per 49 CFR, 172.101, Appendix B.

SECTION 15. REGULATORY INFORMATION

Component Trixylenyl phosphate is subject to the following

Enviromental List

DSL	Domestic Substance List-Canada
TSCA	Toxic Subst. Cont. Act -listed

Component t-Butylphenyl diphenyl phosphate is subject to the following

Enviromental List

DSL	Domestic Substance List-Canada
TSCA	Toxic Subst. Cont. Act -listed

Component Bis(t-butylphenyl) phenyl phosphate is subject to the following

Enviromental List

DSL	Domestic Substance List-Canada
TSCA	Toxic Subst. Cont. Act -listed

Component Tri(t-butylphenyl) phosphate is subject to the following

Enviromental List

DSL	Domestic Substance List-Canada

SECTION 15. REGULATORY INFORMATION (CONTINUED)

TSCA	Toxic Subst. Cont. Act -listed

Component Triphenyl phosphate is subject to the following

Enviromental List

DSL	Domestic Substance List-Canada
MA. LIST	Massachusetts Substance List
NJ R-T-K	New Jersey R-T-K Hazard. Sub.
PA. LIST	Penn. Hazardous Substance List
TSCA	Toxic Subst. Cont. Act -listed

OTHER REGULATORY INFORMATION
No other regulatory information is available on this product.

WHMIS HAZARD CLASS
D-2A; D-2B

HAZARD RATING SOURCE
HMIS

HEALTH
2

REACTIVITY
0

FLAMMABILITY
1

OTHER

SECTION 16. OTHER INFORMATION

OTHER INFORMATION
FYRQUEL is a registered trademark of Akzo Nobel Chemicals Inc.

Revisions made in Section(s) 2, 3, 5, 9.

CREATED BY
Product Safety 914/674-5000

KEY TO ABBREVIATIONS:

EQ=EQual LT=Less Than GT=Greater Than
AP=APproximately TR=TRace ND=No Data available