What Is TOXIC-LOK

TOXIC-LOK is a 100% natural mineral mined in the United States that has a native ability to absorb liquids, including hydrocarbon based liquids, and not release them even when in contact with water.

TOXIC-LOK can absorb and retain a spill of oil, diesel, jet fuel, gasoline, crude oil or any other environmentally damaging liquid, better than any other commercial material on the market and at the lowest competitive price. TOXIC-LOK will not allow the contaminate to leach out of its structure and contaminate surrounding areas.

A TOXIC-LOK diatom cell structure.

SPECIFICATION SHEET

A natural siliceous (amorphorus) mineral, made from the layers of diatomes and volcanic tuffs of Northern California's Cascade Range. Lassenite Type N Pozzolan conforms to ASTM C-618, Federal Specifications #SS-C-1960/5 and CSA-CAN-A266-3M (Canadian) specifications for Type N (Natural) Pozzolan and meets specification requirements of the NRC for use on the Nuclear Reactor Program, California Department of Water Resources, Corp of Engineers, U.S. Water & Power Resources Services, Cal Trans, Pacific Gas & Electric, Idaho Power and Arizona Public Service for hydraulic structures and power plants, Bechtel Corporation for hydraulic structures, municipalities for waste water treatment and transportation facilities.

CHEMICAL ANALYSIS	LASSENITE TYPE N	TYPE N/ASTM C 618 SPECIFICATION
SiO_2	70.5%	--
Fe_2O_3	6.0%	--
Al_2O_3	17.8%	--
Total Oxides	94.4%	70.0% MIN
CaO	2.3%	--
MgO	0.8%	5.0% MAX
SO_3	0.6%	4.0% MAX
Na_2O & K_2)	0.9%	1.5% MAX
Loss on ignition	0.2%	3.0% MAX
pH	6.0	--
PHYSICAL CHARACTERISTICS		
Specific Gravity	2.36	--
Bulk Density (Pcf loose)	38.0	--
Blaine Fineness (CM^2/CM^3	27M	6.5 MIN
Amount Retained #325	Wet Sieve 12%	34% MIN
Pozzolanic Activity	Index-Cement 94%	75% MIN
Pozzolanic Activity	Index-Lime 1450 Psi	900 MIN
Water Requirement (% of Control)	106	115 MAX
Soundness	0.03%	0.5% MAX

RENO FIRE DEPARTMENT

SAFETY/TRAINING DIVISION

memo # 94-009

Delete Date: March 1,1994

DATE: February 1,1994

TO: All Personnel

FROM: Captain Larry Gann-Safety/Training Division

VIA: Assistant Chief Lee Amestoy

SUBJ: Distribution and Use of *Water-Lok*

Effective immediately, the product, *Water-Lok* will be used in place of *Dicalite* for the absorption of spills. During the coming week it will be distributed in 40 lb. pails, 3 pails per station, along with your supplies. Each pail has the absorption capability of 2-3 bags of *Dicalite*. **Each station's supply of *Dicalite* will be exchanged by having your runner deliver it to Station #1 when picking up supplies.**

Water-Lok is used by sprinkling it on the surface of the spill and using a broom to enhance the rate of absorption, much like *Dicalite*. The major difference is that *Water-Lok* will absorb any liquid, regardless of its chemical composition or viscosity, capturing petroleum products first. *Dicalite* will only absorb petroleum products such as gasoline, oil, or diesel fuel. Also, due to its weight and density, *Water-Lok* is much easier to use effectively under windy conditions. It is particularly useful in constructing dikes and berms to keep spills from reaching sewers, storm drains, or waterways. If the spill has already found its way into a body of water, *Water-Lok* may be undesirable since it captures and carries the product to the bottom, making recovery difficult. In this case, *Dicalite* may be preferable because of its ability to float and can be requested from Station #1 or Environmental Control.

File the Material Safety Data Sheet attached to memo # 94-008 in your station's MSDS binder. If you need additional instruction in the use of this product, contact your shift's haz-mat technicians at Station #3 since they have seen the product demonstrated.

If you have questions, call me at x2358 and I will attempt to answer them.

Procedure for Outdoor Contaminant Spill

To contain an Outdoor Chemical Spill:

1. Contain spill rapidly by diking with TOXIC-LOK. Attempt to prevent chemical from contaminating ground water and sewer system. Cover opening to sewer if able to do so.

2. Add more TOXIC-LOK to spill area to absorb all of the spill.

3. Collect TOXIC-LOK and spill material into a pile and contain mixture.

4. Mixture can now be moved to an area for disposal or can be remediated with use of TOXIC-LOK enzyme if available.

5. Dispose of all cleanup materials as hazardous waste. Waste must be properly packaged in a leakproof container, sealed and labeled with a hazardous waste label.

6. If a residue remains after removal of spilled material, the area should be treated again with TOXIC-LOK and allowed to stand 5 minutes to an hour. Collect any remaining residue.

7. Immediately call local Hazardous Chemical Control Center.

8. Do not leave spill site unattended at any time during containment and cleanup.

9. Report the incident to nearest Environmental Health and Safety authority.

Background on Oil Spill Problems

Yearly spillage

Every year 100 million US gallons of oil are spilled. This is equal to 100 school gymnasiums:

Typical school gymnasium = 45' X 45' X 66'
= 133,650 cubic feet
1 cubic foot = 7.481 gallons
Gym holds 999,387 gallons (almost 1 million gallons).

The largest recorded oil spill occurred during the 1991 Persian Gulf War when about 240 million gallons spilled from oil terminals and tankers off the coast of Saudi Arabia. The second largest spill occurred over a ten-month period (June 1979 - February 1980) when 140 million gallons spilled at the Ixtoc I well blowout in the Gulf of Mexico near Ciudad del Carmen, Mexico. But all the oil spilled during the Persian Gulf War is about 1/3 of what the US uses in one day! The Exxon Valdez spill in Alaska was approximately 11 million gallons. It came from a huge supertanker that was about the size of 15 gyms in length X 4 gyms wide X 2 gyms deep (which held 66 million gallons). That spill was the 35th largest in the world, though it was the largest in the United States.

Why does all that oil spill?

We use a lot of oil and it needs to be transported. The United States uses 710 million gallons per day. In fact, every 22 minutes, the United State uses an equivilent amount of oil to what was spilled by the Exxon Valdez. The world uses 2.73 billion gallons (2,730 gyms full) per day. Every day 31.5 billion gallons of oil are at sea being transported. But not all spills come from tankers. Some come from storage tanks, pipelines, oil wells, tankers and tanks-cleaning vessels.

What is all that oil used for?

- Fuel (for transportation and factories)
- Electricity generation
- Machinery
- Asphalt
- Heating
- Wax (crayons, candles)
- Medicines
- Ink
- Plastics
- Fertilizers
- Pesticides
- Paints/varnishes

How does it spill?

- Accidents: often through carelessness
- Unavoidable events: weather, earthquakes
- Intentional spills: terrorists, war, vandals, dumping

What happens to oil when it spills?

Most oils floats because it is lighter than water. A good experiment is to add vegetable oil (which acts like crude oil) to food-colored water in a large, clear plastic soda bottle. Shake it and watch

how the oil settles on top.

Thirty to Fourty percent of oil spills evaporates in the first 24-48 hours. These are the most poisonous (toxic) soluble, and flammable portions.

Oil tends to float and spread out into a very thin film on the water surface...usually only about 0.1 mm thick...then spreads even thinner to a sheen. Sheens are often seen as rainbow-like or silvery in puddles in parking lots.

It is very rare for oil to sink. It needs to adhere to heavier particles such as sand, algae, or silt to sink. An exception is a kind of oil used for burning in electric utility plants. This oil can actually sink in water since it is heavier than water.

What are the environmental impacts?

These impacts are often exaggerated in the media. Environmentalist groups have been notorious in spreading misinformation about environmental effects. Nevertheless, oil can have a significant impact on marine larvae, birds, mammals and to a lesser extent, fish.

Some components of oil are toxic if exposure occurs within the first two days of a spill (1 part per million [ppm] can be toxic to invertebrate larvae and 1000 ppm for fish). Oil on feathers hinders the water-repellancy of the bird. Oil on fur takes away its insulating properties.

What happens after a spill occurs?

Response teams often protect sensitive areas with booms (floating barriers) and help oiled wildlife by cleaning birds and fur-bearing mammals with detergent. The most common cleanup techniques are outlined below:

•Containment and recovery: Surround the oil with booms and recover the oil (for cleaning and reuse) with skimmers. Skimmers separate oil from the water by:
•centripetal force -- water is heavier than oil and spins
out further so the oil can be pumped out
•lifting oil on a conveyor belt off the water surface; or
•wringing out the oil that clings to oleophilic (oil-attracting) rope mops.This technique is the most widely used as it is least destructive, but it is only 10-15% efficient under even the best circumstances.
•Sorbents: Remove oil with absorbent sponges made from diaper-like substances. Some sorbents are made from natural materials -- straw, grasses, coconut husks, or wood chips.
•Dispersants: These are chemicals that act like detergents to break oil up into tiny droplets to dilute the oil's effect and to provide bite-sized bits for oil-eating bacteria that occur naturally, particularly in areas that have had a history of oil spillage.
•Burning: Burning is usually 95-98% efficient, but does cause black smoke. The smoke is not more toxic than if the oil were burned as intended in fuels. One gallon of oil burned this way creates the same pollutants as three logs in a fireplace or woodstove.
•Bioremediation: Enhancing natural biodegradation by natural oil-eating bacteria by providing them with needed fertilizers or oxygen.
•Shoreline cleanup: High-pressure hosing to rinse oil back into water to
be skimmed up. This usually does more harm than good by driving the oil
deeper into the beach and by killing every living thing on the beach. This was used extensively after the Exxon Valdez spill due to public and state pressure to make the beaches "look clean again," despite the known risks. Areas left alone to be weathered by winter storms were shown to be cleaner and harboring more life than those cleaned by high-pressure washing. (Short term aesthetic considerations should not override the more basic longer term ecological considerations in

rehabilitating a beach.)
•Do nothing: Particularly in open ocean spills, cleanup is difficult and not efficient. Wave action and photo-oxidation (from sun) helps to break oil down.

Who else might be affected by an oil spill?

Fishing industry, resorts and recreation areas, water supplies for drinking and industry.

What about prevention?

Since cleanup after an oil spill is so ineffective and so difficult, and does not always fully rehabilitate affected areas, prevention is most important. Effective prevention plans might include:

•improved piloting; training of ship and tanker crews
•training of storage and pipeline facility crews
•enforcing pollution rules at sea
•building more spill-resistant vessels
•maintaining vessels and pipelines
•preparing for spill response through effective training, planning (contingency planning), and practice drills.

What can we do?

Don't spill used motor oil. Return used oil to a service station for proper disposal at a facility that will clean and recycle the oil. Reduce usage of fuels, electricity, and plastics.

CLEANUP STRATEGIES FOR OIL SPILLS ON WATER

There are four main strategies that responders currently employ to clean up oil spills in water. In many spills situations, spill responders employ more than one strategy in different locations or in different phases of cleanup operation:

- **Mechanical Recovery and Containment:**
  Responders attempt to corral as much of the oil as possible and remove it from the surface of the water where it floats at a thickness of at most a few millimeters. Workers deploy floating booms to contain or fence off the oil slick or portions of the slick. The oil is then collected with skimmers which remove oil and water from the surface and separate the oil from the water or with vacuum hoses which suck up oil from the surface.

- **Dispersants:**
  Dispersants are a form of chemical detergent sprayed onto an oil spill from aircraft or boats. The chemicals break the oil up into tiny droplets which spread through the water column. The use of dispersants accelerates the process of physical and chemical breakdown that would occur during natural weathering.

- **Burning:**
  In some oil spills the oil burns as a result of an explosion onboard the tanker. In other situations, cleanup crews intentionally set an oil slick ablaze to burn oil off the surface of the water. In intentional burns, often called "in-situ burning," the oil is concentrated and corralled through the use of booms and ignited by flares, bombs, rockets, or lasers. The fire burns until the fuel runs out or conditions favorable to combustion change.

- **Doing Nothing (Natural Cleanup):**
  If nothing is done, oil will "weather" naturally. This means it will break down chemically and physically with turbulent wave action and the effects of sunlight. Within 24-48 hours the most toxic portions of the oil will evaporate, posing less of a threat to wildlife. Eventually the oil will break up into smaller droplets that are more easily biodegraded by naturally-occurring microorganisms.

MAJOR PROVISIONS OF THE OIL POLLUTION ACT OF 1990 (OPA 90)

The US Congress passed OPA 90 in the wake of the March 1989 Exxon Valdez oil spill. The law's major provisions are:

Emergency Response Plans:
The law requires vessel and facility owners to develop plans detailing the steps that they will take to respond to a spill. These plans must include contractual arrangements with US oil spill cleanup organizations. Foreign shipowners must identify a qualified individual to act on their behalf in the event of a spill. Certain facility and vessel owners were required to submit plans to the US Coast Guard and/or the US Environmental Protection Agency by February 1993, and had to act in accordance with these plans by August 18, 1993.

Double Hulls:
All ships operating in the US are required to have double hulls by 2015.

Liability:
OPA 90 does not hold cargo owners liable for oil spills Shipowners are subject to limits of $1,200 per gross ton of oil; onshore facility and deepwater port owners to $350 million; and offshore facility owners $75 million. OPA 90 subjects spillers to unlimited liability for gross negligence, willful misconduct, violation of any federal operating or safety standard, or failure to report a spill or take part in a cleanup.

Spill Fund:
OPA 90 established a $1 billion Oil Spill Liability Trust Fund. The federal government collects monies for the fund from a five-cent-per-barrel tax on oil. Third parties that have damage resulting from an oil spill can submit claims against the fund. The US Coast Guard can access the fund if it is unable to locate the party responsible for the spill.

Navigation:
OPA 90 requires the US Coast Guard to study navigational measures that it could implement to reduce spills. As part of the study, the Coast Guard will examine whether to prohibit tankers from traveling in certain areas in the US. The Coast Guard is also working on tug escort regulations.

State Preemption:
Congress inserted a provision in OPA 90 allowing states to pass more stringent laws than the federal government, and many states have done so.

Demonstrating TOXIC-LOK.

TEST 1.

Items needed:

A. Spill sample (diesel, gasoline, oil, crank case oil, any other liquid contaminate)
B. TOXIC-LOK sample
C. Sample of material currently being used by prospective customer.
D. Broom
E. Plastic pail

Procedure:

1. Pour liquid contaminate onto a control area.

2. Surround spill with TOXIC-LOK to stop the spread of the spill.

3. Spread TOXIC-LOK on top of spill and allow to absorb liquid from 5 minutes to an hour, depending on depth of spill contained.

4. Sweep TOXIC-LOK into a pile and place into a holding container.

5. Do the same with competitor's product if available.

6. View test area. If a spot still remains, add one layer of TOXIC-LOK to site and let stand from 5 minutes to an hour. Sweep this material up. There should be no residue left.

Observation:

With the use of TOXIC-LOK, area should be cleaner or as clean as test area with competitor's product. In most cases, the TOXIC-LOK test area will be cleaner.

Demonstrating TOXIC-LOK.

TEST 2.

Items needed:

A. Glass of water.
B. TOXIC-LOK sample
C. Spill sample (diesel, gasoline, oil, crank case oil, any other liquid contaminate)
D. Spoon

Procedure:

1. Make a pile using TOXIC-LOK.
2. Pour spill sample on to TOXIC-LOK but do not cover entire sample.
3. Allow spill sample to be absorbed by TOXIC-LOK.
4. Using a spoon, pick up the spill sample that has been absorbed by the TOXIC-LOK.
5. Place this material in the glass of water and observe.

Observation:

TOXIC-LOK and contaminate should fall to bottom of glass with no release of the contaminate into the water.

This demonstrates how TOXIC-LOK will hold the contaminate and not allow contaminate to leach out of the material as other materials will.

Material Safety Data Sheet

May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

U.S. Department of Labor
Occupational Safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072

IDENTITY (As Used on Label and List)

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that

Section I

Manufacturer's Name: Water-Lok Corp. of Nevada	Emergency Telephone Number: 702/359-4474
Address (Number, Street, City, State, and ZIP Code): 380 So. Rock Blvd. Sparks NV 89431	Telephone Number for Information: 702/359-4474
	Date Prepared: 11/13/97
	Signature of Preparer (optional):

Section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)

None - Product is inert and non-toxic. All chemical elements are physically bound. Typical Chemical Analysis

SiO_2 66-72%	Al_2O_3 11-17%	Fe_2O_3 2-4%	
CaO 1-4%	K_2O 1.5-4.7%	Na_2O 3-5%	

Section III — Physical/Chemical Characteristics

Boiling Point	None	Specific Gravity (H_2O = 1)	2.2-2.4
Vapor Pressure (mm Hg.)	None	Melting Point	0
Vapor Density (AIR = 1)	None	Evaporation Rate (Butyl Acetate = 1)	0

Solubility in Water: Moderate

Appearance and Odor: Various shades of light grey: odorless

Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used): Will not support combustion	Flammable Limits: None	LEL	UEL

Extinguishing Media: Not applicable

Special Fire Fighting Procedures: Not applicable

Unusual Fire and Explosion Hazards: Not applicable

OSHA 174, Sept. 1985

(Reproduce locally)

Section V — Reactivity Data

Stability	Unstable		Conditions to Avoid
	Stable	X	

Incompatibility (*Materials to Avoid*)

Hazardous Decomposition or Byproducts

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	

Section VI — Health Hazard Data

Route(s) of Entry: Inhalation? Skin? Ingestion?

Health Hazards (Acute and Chronic) None

Carcinogenicity: NTP? None IARC Monographs? OSHA Regulated?

Signs and Symptoms of Exposure None

Medical Conditions Generally Aggravated by Exposure None

Emergency and First Aid Procedures Flush with water eyes, under eyelids and skin 15 minutes

Section VII — Precautions for Safe Handling and Use

Steps to Be Taken in Case Material Is Released or Spilled Use dustless system, vacuum or wet sweeping

Waste Disposal Method Follow applicable Federal & State & Local Regulations

Precautions to Be Taken in Handling and Storing None

Other Precautions None

Section VIII — Control Measures

Respiratory Protection (*Specify Type*)

Ventilation	Local Exhaust Yes	Special	N/A
	Mechanical (General) N/A	Other	N/A

Protective Gloves N/A Eye Protection None

Other Protective Clothing or Equipment None

Work/Hygienic Practices Practice good hygiene when using this material.

TOXIC-LOK Super Concentrate in conjunction with TOXIC-LOK host material.

TOXIC-LOK can allow for in-situ remediation with the application of our enzyme "TOXIC-LOK Super Concentrate". TOXIC-LOK will hold the contaminant securely within the structure without leaching. Enzymes can be added which will render the contained material harmless.

TOXIC-LOK Super Concentrate is a bioremediation product for engineered bioremediation systems.

TOXIC-LOK Super Concentrate contains a blend of hydrocarbon degrading microbes at a concentration of 90 billion microbes/gram.

TOXIC-LOK Super Concentrate may be blended with water and applied to ocean, tidal or river spills.

TOXIC-LOK Super Concentrate can be used in: waste water treatment, in situ and ex situ bioremediation, the treatment of: lagoons, oily sludge, tank water bottoms, septic tanks, grease traps and animal wastes.

Products that can be bioremediated by TOXIC-LOK Super Concentrate:

Acenapthene, acrolein, acryolonitrile, alkylamine oxides, aromatics, benzene, biphenyl, brake fluids, chlorobenzene, chlorinated phenols, chloro napthalene, cutting oils, chloroform. crude oil, diesel fuel cyanide, dichlorobenzene, fluoranthene, diethyleneglycol, ethylbenzene, grease, fuel oils 1-6, gasoline, hexane/hexene, hydraulic oils, heptane, isoprene, jet fuels, kerosene, long chained alkenes, lubricating oils, marine fuels, mercaptan, methylene chloride, monoalkylbenzenes, motor oils, napthalenes, nitrated phenols, oil based paints, oil based fluids, oil based inks, organic herbicides, phenylureas, phthalate esters, polycyclic aromatics,pulp by products, secondary alkylbenzene, toluene, trichloroethylene, varsol, vegetable oils, xylene.