



# **Mechanised Under Ground Mining And Hydrocarbon Contamination**

**Presented  
by  
Lubritech Manufaturing (Pty) LTD**

Overlooking or inadequately controlling hydrocarbon contamination on mining sites can have considerable negative consequences for a company:

These are:

- **reputational risks**
- **potential legal suits and settlements**
- **as well as the possibility of having one's operating licence cancelled**

With confidence in the mining sector at an all-time low due to the commodities price slump it is a concern that there might be lapses in adherence to good practice in environmental management as mining houses embark on cost-containment measures to ensure that their operations remain viable.

**Amongst the areas that might be affected is pro-active hydrocarbon contamination control.**

Based on persistent reports of soil and groundwater contamination on closed mines in South Africa it can be concluded that, even during times when the sector was experiencing a boom, there has not been a commitment to sound hydrocarbon contamination on some mine sites.

**Fuel and Oil spills often occur during routine operations, and fuel and oil leaks can occur in fuel and oil systems which are assumed to be leak-tight and failsafe.**

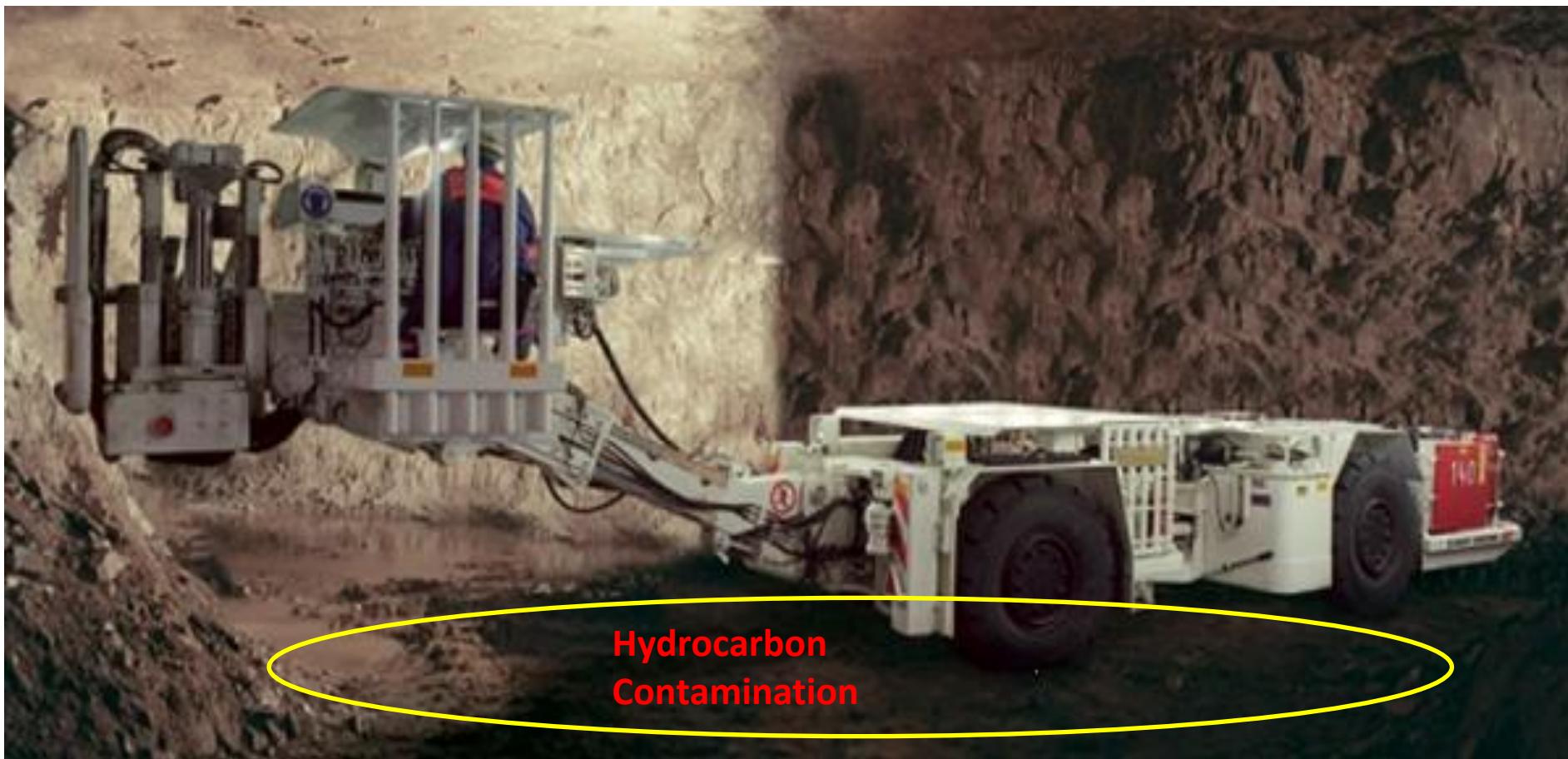




Hydrocarbon  
Contamination



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- Pipes burst and fuel and oil spills occur on a regular basis in all above ground and underground workshops and mining areas.
- Due to these spills decline's, roadways and all concrete areas are covered with oil on a daily basis.
- This is why the mines use thousands of litres of degreaser every single day to wash these spills away and move the oil from point A to point B , the underground dams or the above ground dams.



**This is not only a  
SAFETY HAZZARD**

**BUT**

**An Environmental  
Problem as well!**



**Degreaser is used to cut the hydrocarbons off the contaminated surface and then it is washed off with water using high pressure hoses moving the hydrocarbon from point A to point B. Clearly just moving the problem around in circles.**





**If this washing process is not done on a daily basis these areas become slippery and a safety risk with accidents lurking in the horizon.**

**Fatal accidents can cause a mine to be temporarily closed down for a period resulting in millions being lost.**



**After passing through oil separation equipment Degreaser and Hydrocarbon contamination still end up in the dams.**

**Processing plants use this water in flotation and it has been scientifically proven that this has a negative effect on the process plant.**

Average ppm	Total C10 – C40	C16 – C22	C22 – C30	C30 – C40
Process Dam	66 ppm		30 ppm	35 ppm
2 <sup>nd</sup> Process Dam	29,361 ppm	5,526 ppm	54,374 ppm	57,239 ppm
Tailings Dam	375 ppm		152 ppm	211 ppm
Underground Dam	165 ppm		65 ppm	97 ppm

**Test done over a 5 month period by an independent laboratory proved this point over and over again.**

# What then is the solution?

## H TECH

- H Tech changes hydrocarbons to an inert organo-silicate.
- H TECH is at the forefront of the natural and environmentally safe treatment of the remediation of oil staining and pollution.
- H Tech is safe to use and will have little or no negative impact on the flotation circuit of the concentrator plant.
- H TECH has been specifically designed to neutralize toxic hydrocarbons to a non-hazardous, and irreversible state.
- H TECH is environmentally safer to use than detergent and solvent based degreasers.

# PROPERTIES:

## H TECH is:

- Biodegradable
- Non-flammable
- Water-soluble
- Non-toxic
- Non-hydrocarbon
- Fire-suppressant
- Inert

- Rather than moving the problem from point A to point B the hydrocarbon contamination is treated at source.
- Mechanized mining equipment moves the oil, via the large tyres and pressurized hoses that break from deep under the mine to all surfaces above ground that it travels on.
- This happens on a daily basis hence the surface areas become saturated with hydrocarbon contamination. Even after it is washed off it quickly turns black again due to **capillary action**.

- In the event that a mine used H Tech from day 1 on a daily basis this saturation an capillary action would not have taken place.
- The hydrocarbons needs to be pulled out of these roadways on a continuous basis every day as they are deposited continuously on a daily basis.

#### **ACTION:**

- H TECH eradicates oil, diesel, petrol, grease, fat stains and slicks from all hard surfaces, including tarred roads.
- There will be no leaching of contaminants, as they no longer possess their chemical fingerprint.

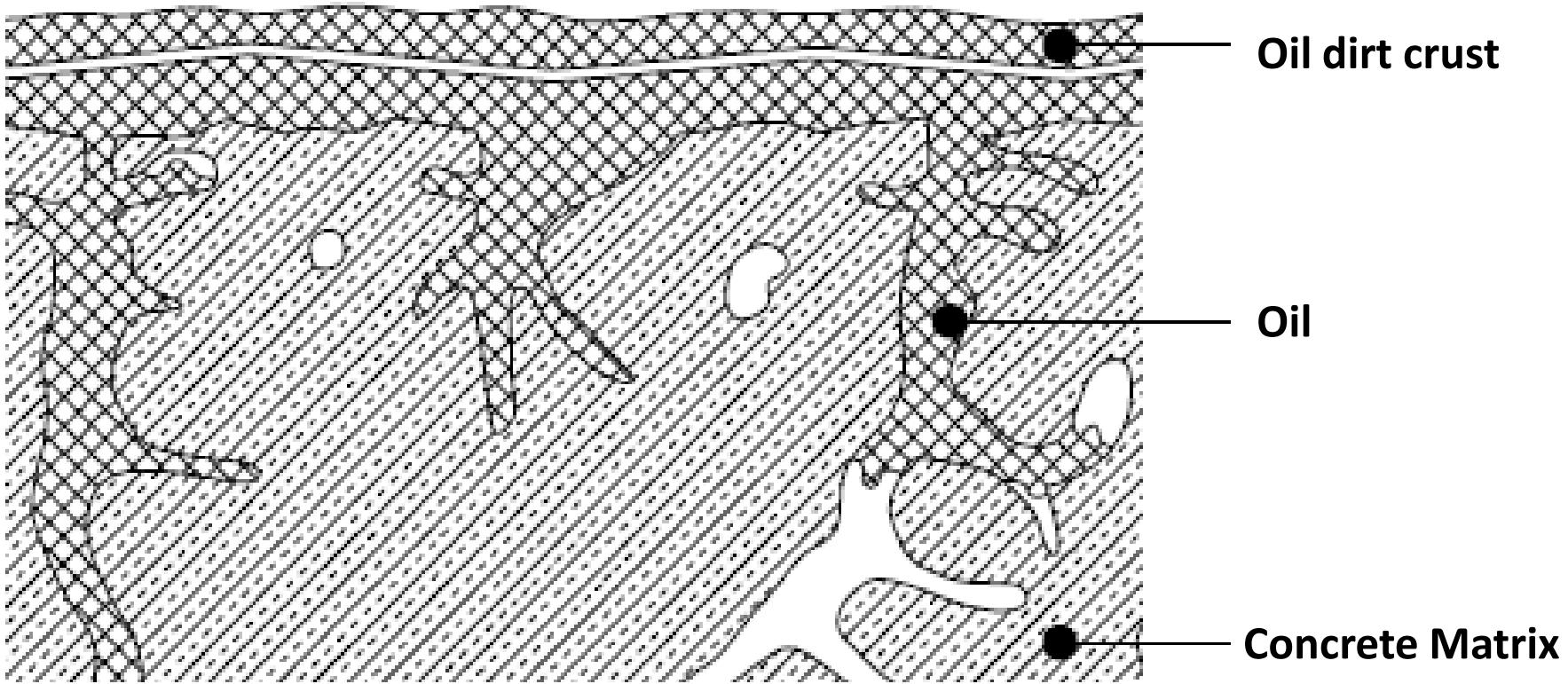
#### **APPLICATION :**

- H TECH is safe for use in environmentally sensitive areas.
- H TECH can be used on: Tarred roads, bricks, concrete, general machinery, steel structures, soil and water.

H TECH is very effective for remediating soil (Tailings and Stock piles)

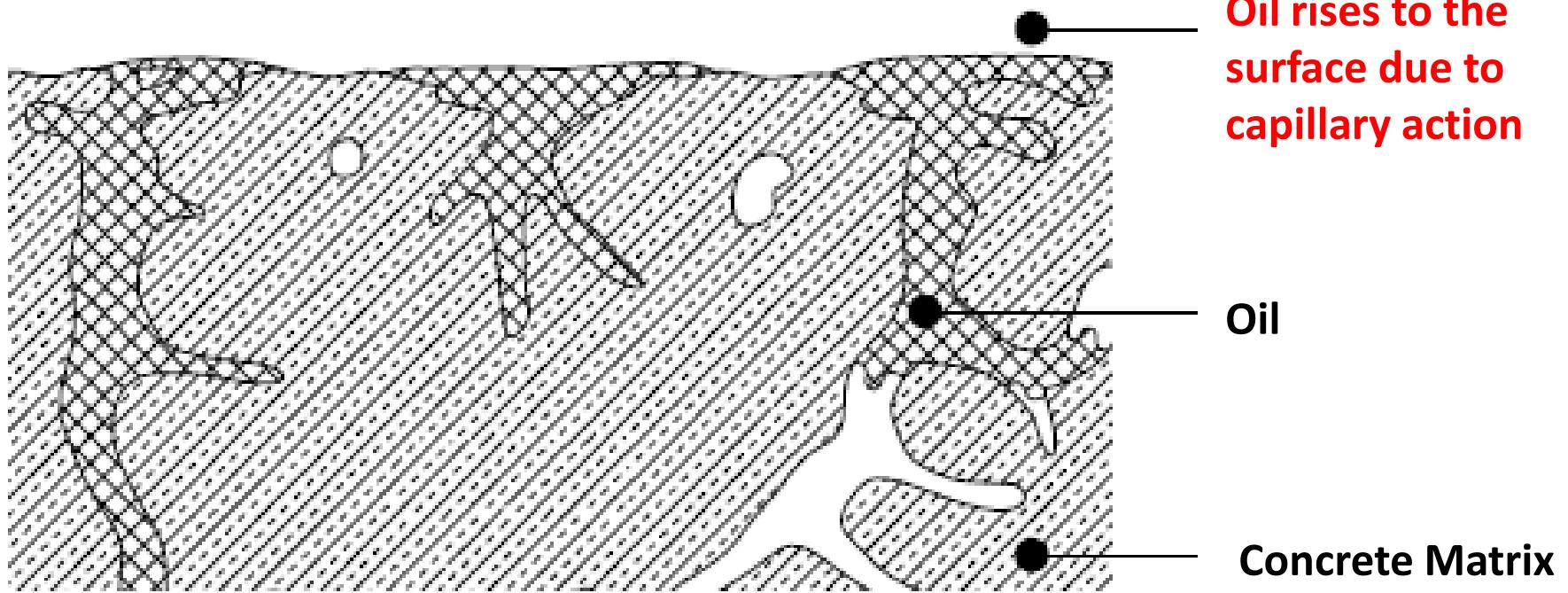
# Capillary Action Explained

## 1. Oil-contaminated concrete floor



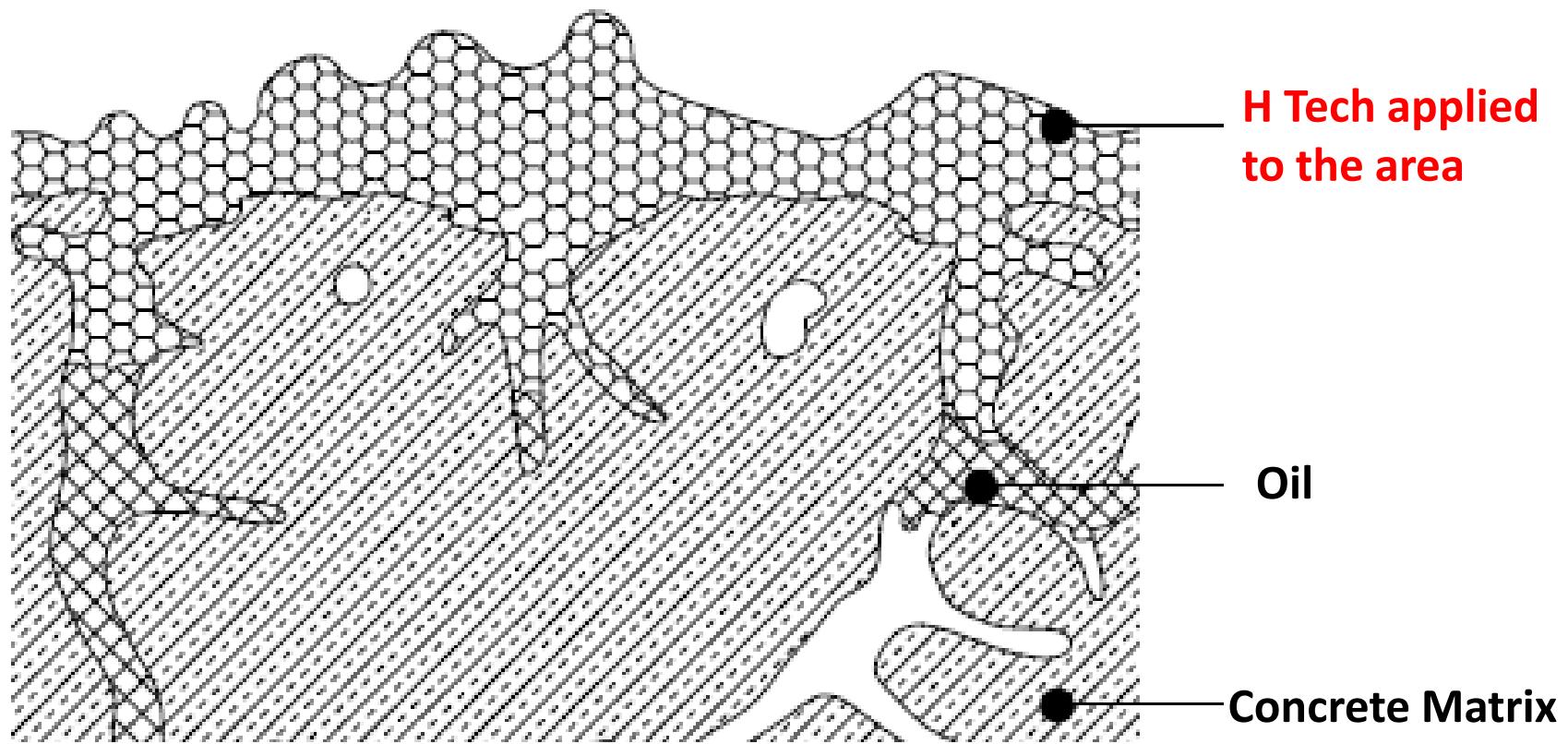
- H Tech is applied under pressure and atomized thereby converting the oil dirt crust layer into an organo silicate.
- Once dry it can be washed off with a high pressure hose and left to dry again.

## 2. Concrete floor after the first treatment of H Tech



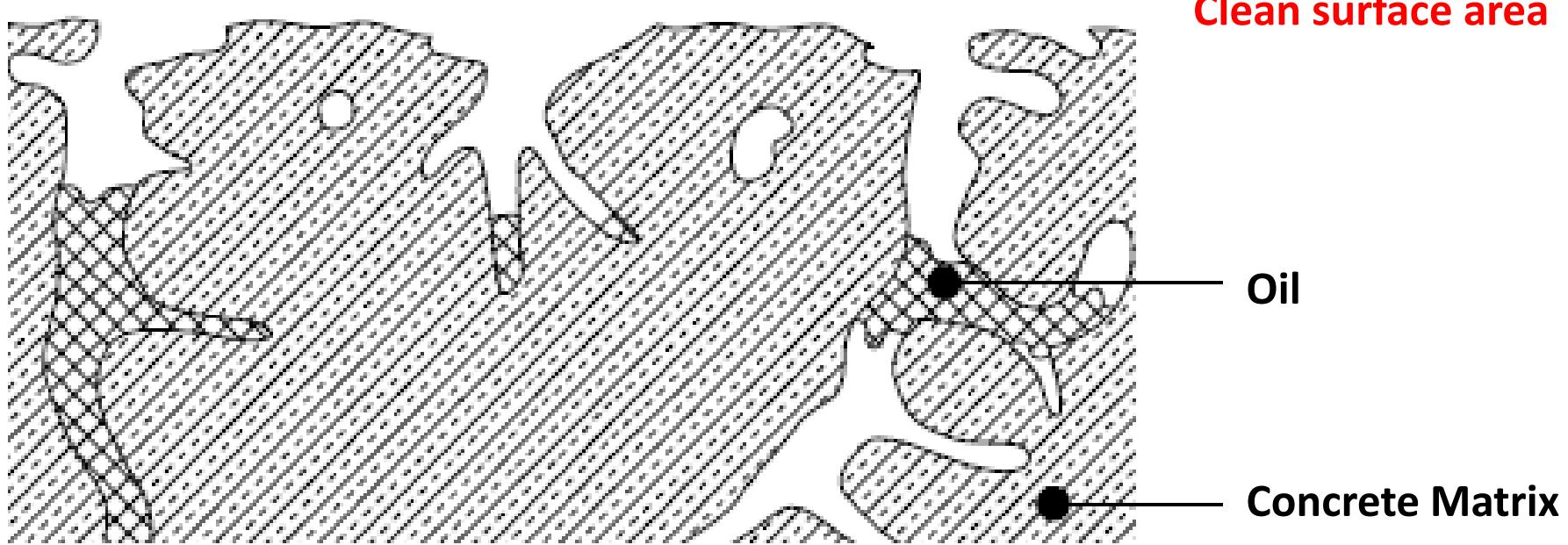
- The concrete floor has been treated with H Tech and the top layer of Hydrocarbons have been removed.
- The oil comes to the surface from the capillaries.
- This process can extend over a number of hours and therefore you will see oil on top of the previously clean concrete.
- **No vehicles have driven on the concrete nor has any oil spillage taken place**

### 3. Cleaning with H Tech Hydrocarbon Convertor



- H Tech is applied under pressure and atomized thereby forced into the capillaries.
- The existing hydrocarbon chains are separated. H Tech makes the micro oil particles inert.
- The inert micro oil particles are transported to the surface by the capillary action. The foam action accelerates the effect of rising.

#### 4. After washing with a high pressure hose the capillaries are free of oil at the surface



- The surface and part of the capillaries are cleared of the oil.
- Within a few hours oil will rise to the surface again.
- The process needs to be repeated again.
- Depending on the saturation off the concrete slab and how quickly the oil rises up from the capillaries this process might take a few months.



Applying H Tech to large areas is effectively and quickly done with a high pressure system.

The product is supplied in flow bins to which a pump is connected and long hoses with an industrial lance is used to cover large areas.



**Hydrocarbon  
changed to  
Organo  
Silicate**



# Concrete Pad at the TM3 Workshop



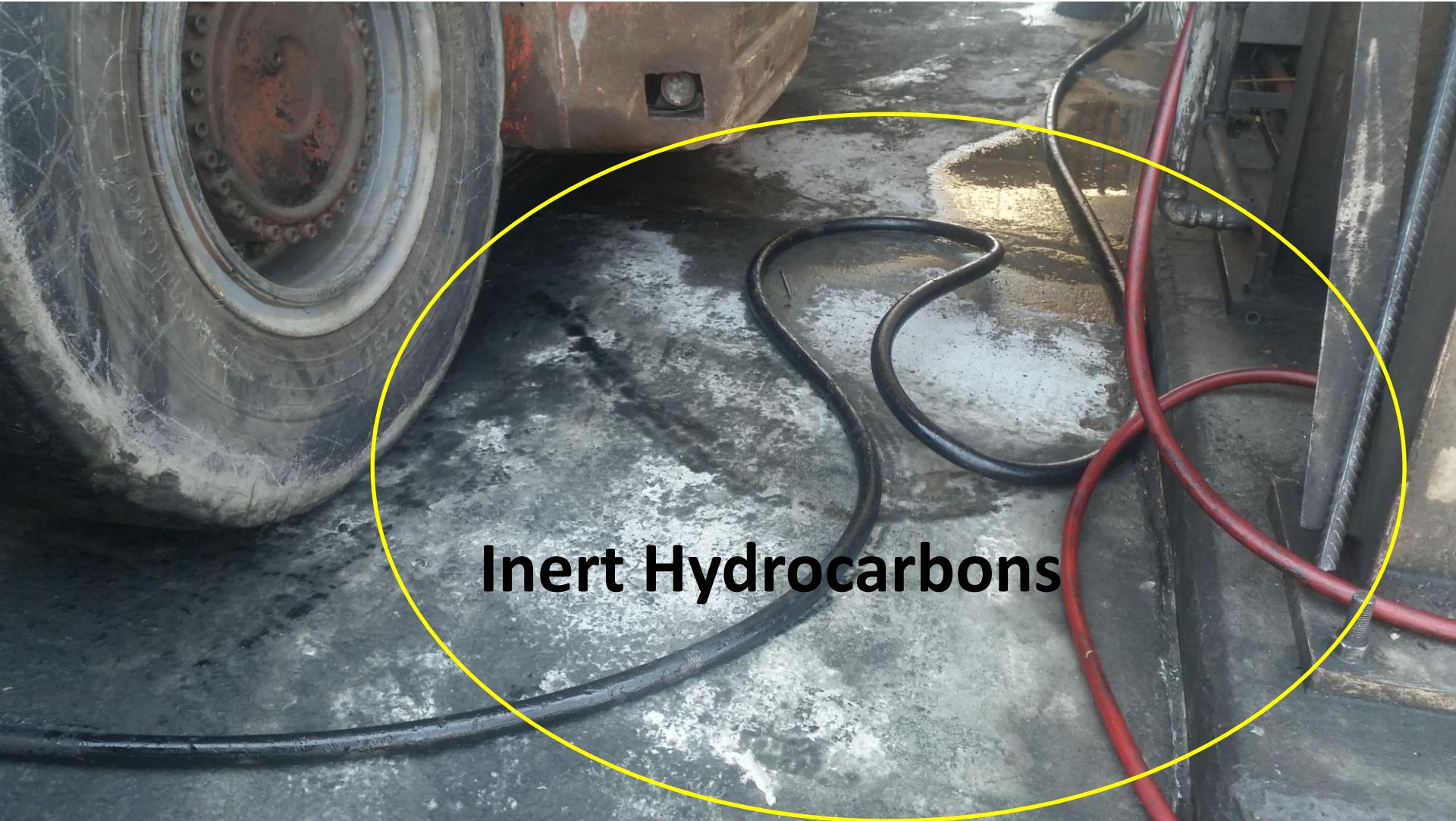
# Inside the TM3 Workshop

The safety hazard of slippery areas have been taken care of and the hydrocarbons are now inert



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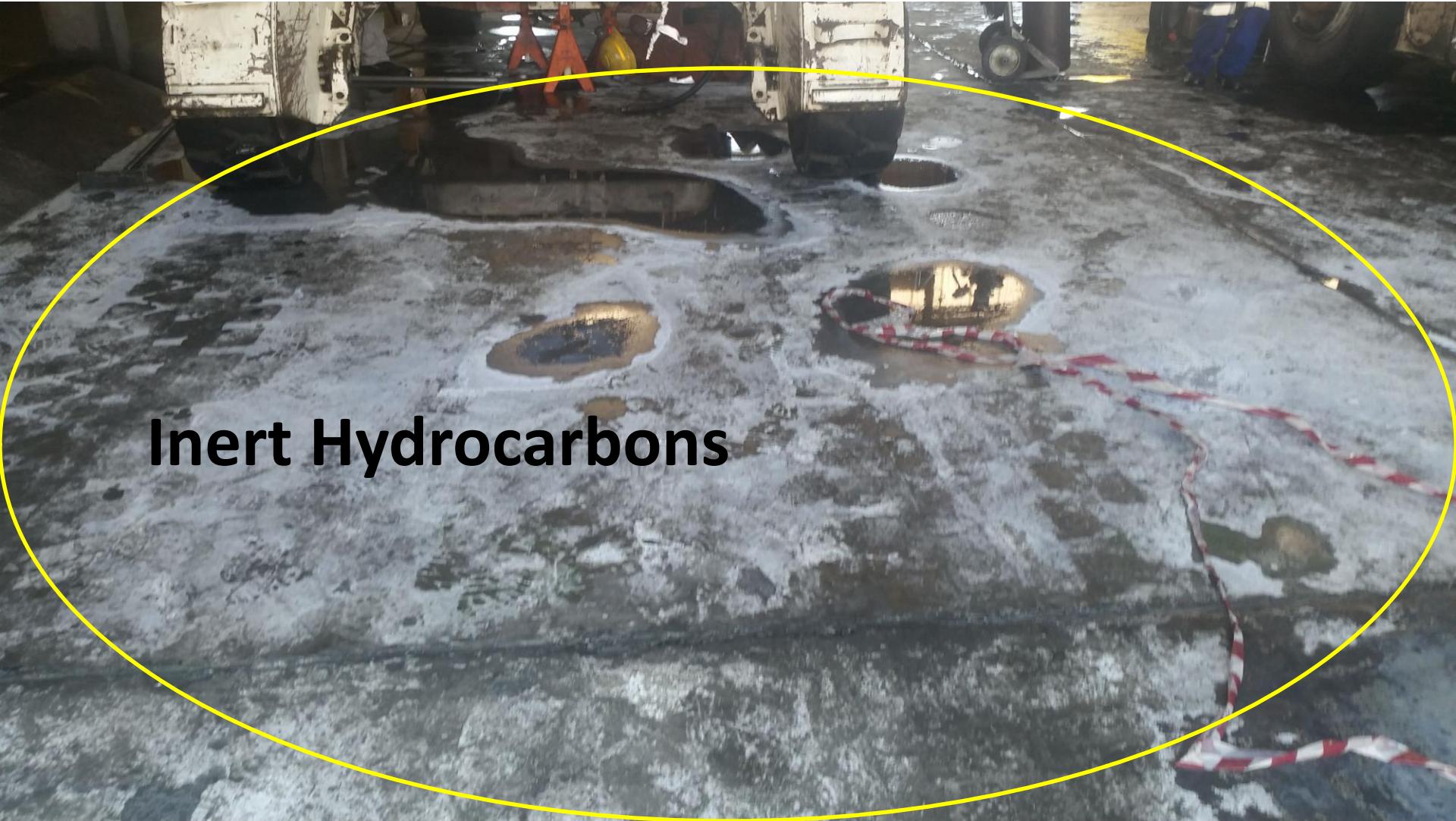
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Inert Hydrocarbons

# Inside the TM3 Workshop

The safety hazard of slippery areas have been taken care of and the hydrocarbons are now inert



Inert Hydrocarbons

# Inside the TM3 Workshop

The safety hazard of slippery areas have been taken care of and the hydrocarbons are now inert



Inert Hydrocarbons



**H Tech has been sprayed on and is drying...**

**Making the hydrocarbons inert.**

**It can then be washed off without negatively affecting the environment**





**A clean  
concrete pad  
without any  
slippery  
surfaces.**

**The safety  
hazard is  
taken care  
off and the  
Hydrocarbon  
problem  
solved...**

**Leaving a  
safe, clean  
working area**



# No slippery Decline



**Take control of your Hydrocarbon  
Contamination problem now by using...**

# **H Tech and E Tech**

**Contact Lubritech Manufacturing so that we  
can work as a team to solve this problem  
once and for all.**

**We look forward to working with you!**