OIL & GAS INDUSTRY
PETCOKE LIQUIFIER

Petcoke Liquifier is designed to make short work of cleaning and removing petcoke from all manner of piping, exchangers, tanks and pumps without damage to the substrate.

RAW's proprietary solution separates hydrocarbon molecules from substrates and liquifies hydrocarbons into easily removed sludge.

This safe-to-use nano-formulation is designed with a combination of surfactants and solvents to separate hydrocarbon molecules from their attachment to all manner of substrates and to liquify the solids.

The now liquified petcoke is easily removed from the vessel and negates the need for caustics, mechanical separation equipment or man-entry processes.

Liquified petcoke in a bath of RAW's solution will demulsify as it cools, making petcoke available for re-entry into the transportation network or for further processing. The remaining RAW product can be separated and re-utilized for the next cleaning cycle.

This water miscible product will not harm substrates and carries a ZERO hazard rating making it safe for employees and the environment.

Petcoke Liquification formulation:

- Dilute with fresh, produced or salt water or with diesel fuel.
- Is non-flammable and contains no Volatile Organic Chemicals (VOC's)

Additional benefits of its ZERO hazard, super-concentrated formulation:

- Work safe costs and liabilities are reduced
- Worker safety issues are minimized as no breathing apparatus, gloves, special clothing or equipment is required to handle product.
- Handling/transportation and storage costs are decreased.

RAW Biochem Is

Readily Biodegradable
Non-Reactive
Non-Toxic
Non-Corrosive
Non-Hazardous
Not Flammable
Contain No VOC's

RAW Biochem Products Do NOT Contain

Petroleum Distillates
Glycol Ethers
Caustics
Ozone Depleting Agents
Nonylphenols
Endocrine disruptors

www.rawbiochem.com

TECHNICAL DATA SHEET

Description

RAW's Petcoke Liquifier is a concentrated blend of readily biodegradable ingredients which revert back to their original state when in contact with naturally occurring micro-organisms, oxygen and water.

In its diluted form, product is compatible with all surfaces and will not harm or damage substrates.

Physical State	Liquid
Colour	Dark Amber
Odour	Soapy Odour
pH	9.2 – 9.6
Base	Plant Extracts
Persistence & Degradability	Readily Biodegradable

Directions for Use

Product formulation is a super-concentrate. Product efficacy is activated by dilution with fresh, produced or salt water or with diesel fuel.

Product use strategy is dependent on:

1. **Dilution Medium:**

I. Depending on how loose or tight and also how dry the petcoke is, will determine which dilution factor will obtain the best results.
II. Always test dilution strength first
III. Optimum dilution temperatures are 160° F to a maximum of 180° F. The hotter you can get the water, the better.

a) **Water Dilution** will range from 25 – 200 parts water to 1-part product.

I. Produced water will require a lower dilution rate than fresh water. The dilution variable is dependent on the hydrocarbon concentration in the produced water.

b) **Diesel dilution** will range from 50 – 350 parts diesel to 1-part product.

2. **Temperature** is an essential ingredient in removing and liquefying petcoke. Process temperature combined with the dilution strategy will determine the speed of liquification.

I. Recommended temperatures range from 26^{0}C (*80^{0}F*) to 220^{0}C (*430^{0}F*).
II. If used in conjunction with steam, product may be added prior to, or; after the burner.

3. **Agitation:**

I. Tanks & Vessels:
- Vertical surface: Apply product with broom, brush or pressure washer and allow to dwell
- Vessel floor: Inject diluted product and aggressively recirculate tank contents. Allow to dwell and liquify petcoke before removing contents.

II. Pipelines & exchangers should have diluted product recirculated with turbulent flow until satisfactory results are achieved. Re-application may be required.

4. **Dwell Time:**

I. It is critical to recognize that depth of petcoke on substrate will determine dwell time.
II. Vertical surfaces may require longer dwell times. The inability for liquids to remain in-situ will require reduced dilution rates and may also require re-application.

Test dilution rates, temperature, agitation levels and dwell time in lab or on-site prior to liquification process.

Contact your RAW representative or distributor for further assistance in determining optimum results for your application.