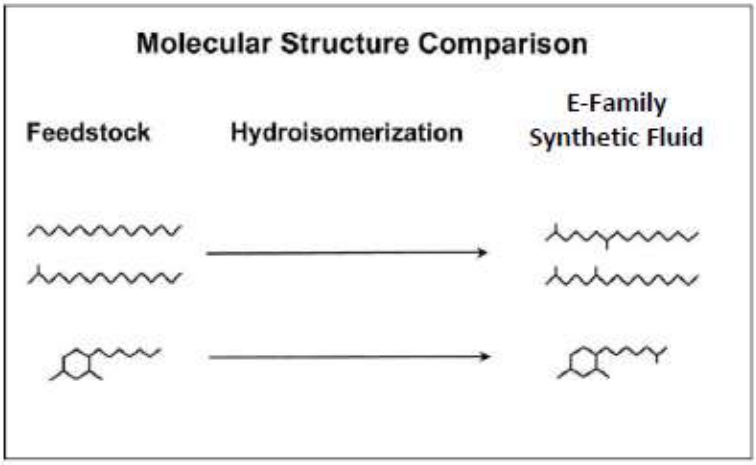
Synthetic Fluid Technology

Overview:

Synthetic fluid-based dust suppresants and oil dust suppressants are not the same. Synthetic fluids and oil dust suppressants have different total costs of ownership, performance, effects on the environment, and the regulatory requirements, with the advantage going to synthetic fluids. Charts and graphs provide the narrative that explains the differing chemistries, performance and environmental impact.

Process:

Synthetic fluids, according to the US EPA, are the result of a checmical change, hydro-isomerization, during which molecules are subjected to great heat and pressure which blow them apart to form an entirely new substance that no longer has a petroleum base. In EPA language, a fluid is not synthetic unless it is **"a material produced by the reaction of a specific purified chemical feedstock, as opposed to the traditional base fluids such as deisel and mineral oil which are derived from crude oil solely through physical seperation processes."**



Testing:

The synthetic fluid component must pass stock limitations for synthetic base fluid per US EPA 40 CRF 435:

1. *PAH Content* - ≤ to 0.001 percent
2. *Sediment Toxicity* – as measured by the 10-day toxicity test (ASTM E1367-92) using a natural sediment or formulated sediment and Leptocheirus plumulosus as the test organism
3. *Biodegradation* – A process by which microbial organisms transform or alter (through metabolic or enzymatic action) the structure of chemicals introduced into the environment with aerobic and anaerobic conditions
4. *Static Sheen Test* – must pass

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Comparison: Synthetic-fluid-based dust suppressants perform better and have less of an environmental impact than oil-based dust suppressants. They also offer a lower overall cost of ownership. See the chart below for a side by side comparison.

SYNTHETIC FLUIDS vs. OIL, A SIDE-BY-SIDE COMPARISON

	SYNTHETIC-FLUID BASED (e.g., EK35, EnviroKleen)	**OIL** (e.g., Competitor)
Where applied	250,000 ft^2 gravel runway	250,000 ft^2 gravel runway
Application rate	1 gallon / 40 ft^2	1 gallon / 30 ft^2
Gallons required	6250	8333
Delivery	275-gallon totes	275-gallon totes
Costs of ownership	Product Freight	Product Freight Double-walled totes or containment diking Oil spill containment materials SPCC Tier I Plan preparation and implementation Repeated maintenance Cost of a Reportable Incident

Midwest Industrial Supply, Inc.
1101 3rd Street Southeast
Canton, Ohio 44707
www.midwestind.com

Tel 330.456.3121
Fax 330.456.3247
Toll Free 1.800.321.0699

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