

## Health and Science Series

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### REACTOR APPLICATIONS TO OTHER INDUSTRIES

#### LESS APPARENT BUT VITAL TO THE ECONOMY

We have previously presented the benefits of increased fuel efficiency, increased horsepower, lowered emissions and reduction in mechanical noise and vibration conveyed by the Fuel Fx Reactor to **conventional transportation vehicles such as automobiles, buses and trucks**. There are, however, several other industrial and military areas, which are not immediately apparent in regard to the Reactor, but are exceedingly important.

The purpose of this article is to present an overview of those industrial activities to demonstrate the scope of Reactor applicability. Future articles will present these areas separately and in more depth. The list includes the following:

1. **Construction** – heavy-duty construction equipment.
2. **Agriculture** – harvesting machines, combines, tractors.
3. **Mining** – diesel-generated machines.
4. **Refrigeration** – diesel-powered compressors.
5. **Marine** – tugboats, barges and other diesel-powered vessels.
6. **Railroads** – diesel-powered locomotives.
7. **Military** – naval ships, landing craft, combat and support vehicles
8. **Freight Transportation** – fleets of diesel-powered trucks.

The utilization of Fuel Fx Reactor technology can be defined as near-boundless considering the unique needs of these industries. Some, such as construction and agriculture, urgently now **need better fuel efficiency** in order to **maintain profitability**. Mining and refrigeration, however, **require lower exhaust emissions** from enclosed space and underground operated diesel equipment to **reduce health hazards**.

A cursory examination of each industrial category reveals facts that should make us appreciate their significant contributions to the overall economy. More than 94% of the freight moved in the U.S. is by diesel power. Two thirds of the machines, which operate America's farms, are diesel-powered. Most of the heavy equipment utilized by the construction industry is powered by diesel. (1).

By 1997 there were **3.9 million diesel-powered tractors** in use on U.S. farms. The construction industry operated nearly **850,000 diesel-powered trucks** in 1997, in addition to hundreds of thousands of off-road diesel-powered machines such as **bulldozers, backhoes and dump trucks**.

Diesel supplies **72% of coal mining energy needs**. Diesel powers the 300-ton capacity trucks and the unit trains carrying more than 11,000 tons of coal. There were over 2,900 diesel-powered machines operating in 173 Coal mines in 1995. Diesel also supplies **85% of the energy used in oil and gas well drilling**, as well as 52% of the support activity energy for oil and gas operations. (2,3).

There are more than 2.5 million "heavy-duty" trucks in operation, averaging 6.1 miles per gallon of fuel. U.S. freight railroads operated **20,000 diesel locomotives** in 1997. All containerships built since 1997 are diesel powered and now comprise the **majority** of the **more than 7,000 operational containerships**. There are more than **5,000 U.S. towboats**, many of which are used to propel over **5,000 barges**. (2).

Diesel power is also used in driving irrigation pumps. This accounted for the irrigation of one quarter (10 million acres) of all irrigated land in 1997. **About 80%** of commercial aircraft heavy-duty ground support equipment (such as airliner tugs) is diesel-powered. Half of the U.S. Navy's auxiliary ships and almost all of the amphibious landing craft are diesel-powered. Oilers and fleet ocean tugs are all diesel-powered. All Coast Guard cutters have diesel power. Most Army self-propelled artillery and armored vehicles are diesel-powered. (2).

There are an estimated 20,000 cold storage facilities in the Los Angeles harbor area, diesel-powered and presenting an **enclosed space emissions health hazard**. Hundreds of thousands such facilities function throughout the U.S. and call for Fuel Fx Reactors to curb these even more life-threatening pollutants.

We have only touched the surface and seen only the proverbial "tip of the iceberg" on this subject. Future articles will explore in more detail and relate how the Reactor can significantly improve diesel-powered equipment operation in each of the industrial areas we have scanned. **The opportunities for beneficial Reactor application are enormous and widespread.**

## REFERENCES

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