

Modified Hydrofluoric Acid (MHF) Use in the Torrance Refinery

Eliminating Hydrofluoric Acid (HF) would require the Torrance Refinery, which supplies 20% of Southern California's gasoline and 10% statewide, to initiate a project that would take several years to complete. That threatens the viability of the plant and over 600 jobs, including USW, IBEW and Building Trades contractors, without any benefit or reduction in risk to the community and is expected to cost in excess of \$500 million.

California has the most stringent gasoline regulations in the world. California produces almost all the gasoline sold in the state due to the lack of pipelines connecting to other states and only certain refineries outside the state being able to produce California-grade gasoline.

Commitment to Safe, Reliable and Environmentally Responsible Operation

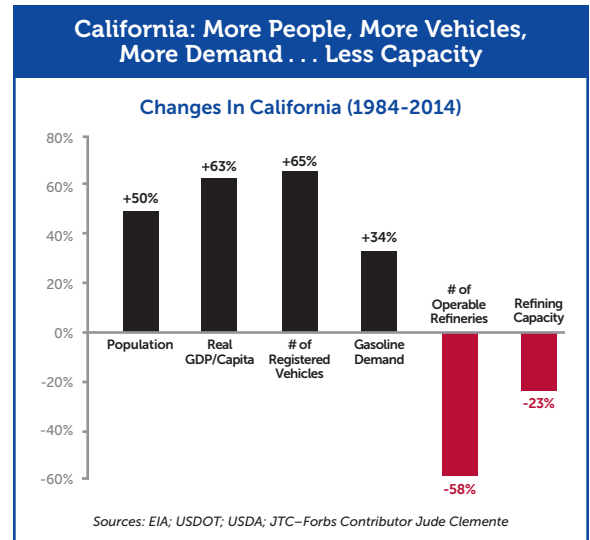
PBF Energy, through its subsidiary Torrance Refining Company LLC, owns and operates the Torrance Refinery, which uses modified HF (MHF) in the refining process to meet California clean burning fuel requirements. MHF contains an additive, which along with other safety measures, reduces the risk of the material as compared to regular HF. Only four refineries in the country have been equipped to utilize this safer form of MHF including the Torrance Refinery. The Torrance alkylation unit is one of the most advanced and sophisticated units in the world.

Maximizing Safety

The Torrance Refinery MHF unit has many layers of protection and we are confident in its ability to protect our employees and the community. Following our acquisition, we initiated our plan to further enhance the process and improve the safety of the unit by installing a direct signal from our monitors to the Torrance Fire Department. In addition, we have retained an independent expert to review and update our safety systems.

The many safety, monitoring and mitigation measures used in the Torrance facility are audited and inspected by independent third parties, as well as federal, state and local agencies. These measures include:

- Surveillance by 8 video camera systems that can be used with 10 remotely operated water cannons to suppress potential MHF vapors.
- Fixed water system in addition to the 10 cannons.
- A rapid evacuation system that quickly empties the acid into isolated containment anytime there is a threat to the unit.
- 35 MHF detectors throughout the unit as well as laser sensor monitors that provide 360 degrees of coverage of the MHF unit at all times.
- Acid sensitive paint on equipment within the unit that detects leaks.
- 3 physical barriers plus a protected storage drum.
- 24/7 monitoring and inspection by highly trained operators.



HF has been in use since it was discovered in 1771.

The Torrance Refinery provides 20% of southern California's gasoline, which is threatened by the elimination of MHF.

Alternatives to MHF

PBF has worked with third party experts to evaluate the continued use of MHF and found that it is the only viable option at this time. In the past, *a court-appointed safety expert determined that the use of MHF is safer than any alternative.*

The only other proven potential alternative is sulfuric acid alkylation, which poses separate risks and disadvantages:

- Sulfuric Acid alkylation requires 200 times more fresh acid.
- Sulfuric Acid does not regenerate like MHF so it has to be transported offsite for regeneration.
- The significant demand for fresh acid and the transport of spent acid would require an additional 1,450 shipments of fresh acid per month (incoming and outgoing) by truck at the Torrance Refinery.
- The regeneration of sulfuric acid requires additional equipment and can result in additional NO_x, SO_x, and GHG emissions.
- Under the current regulatory environment, it would take several years to permit, design and construct a sulfuric acid alkylation unit. No refinery has ever switched from one form of acid for alkylation to another.
- Based on comparable projects elsewhere, building a Sulfuric Acid Alkylation Unit at Torrance is expected to cost in excess of \$500 million.

Community Interaction

PBF respects the community's concerns about the use of MHF. PBF has met with elected officials and concerned citizens and will continue to maintain an open dialogue with our neighbors.

PBF and the community have a common goal of wanting the refinery to operate safely. We are confident in the systems that we have in place. We continually follow technology to identify ways to advance our operations.

Emerging Technology

A new technology—Ionic Liquids Alkylation—is being evaluated at a refinery in Salt Lake City. That unit is scheduled to be operational around 2020.

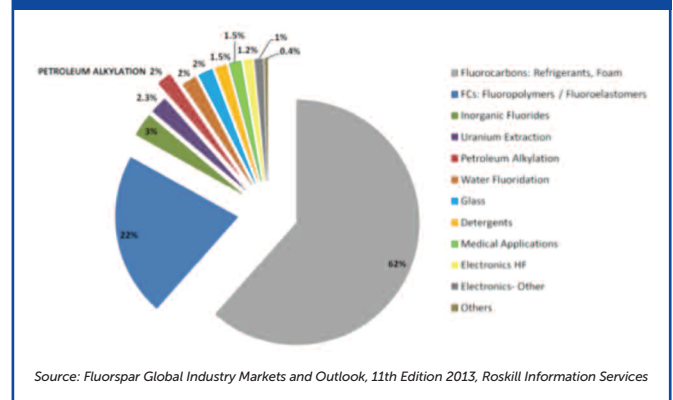
PBF will closely monitor the development of potential alternatives to MHF that are **proven** to be safe, reliable and consistent with the California's environmental goals. PBF strongly believes MHF can be used safely at the Torrance facility, and it is the only current option for the viability of the facility.

Investing in the Local Economy

In addition to providing jobs, our property and other taxes help pay for local schools, while our philanthropic giving and community volunteerism provide an extra boost. In our community, the Torrance Refinery:

- Has operated in City of Torrance since 1929 and is one of its largest tax payers.
- Employs more than 1,100 company workers and contractors.
- Pays about \$122 million in salaries, wages and benefits.
- Generates about 9 additional jobs in the community with each refinery job.
- Contributes funding to more than 43 local nonprofits.
- Spends about \$100 million in Torrance and \$350 million in Los Angeles County each year on goods and services.
- Produces 10% of gasoline in California and 20% of the gasoline in southern California.

Global HF Consumption by End Use Application



Approximately 50% of U.S. refineries use HF.

Uses in California:

- Semiconductors
- Agriculture
- Gasoline
- Refrigerants
- Water Fluoridation
- Quartz
- Pharmaceuticals
- Beer Brewing
- Home Products