

## CHEMISTRY

# Make Better Gasoline

► **HYDROGEN FLUORIDE** alkylation units have been improved recently with resulting lower operating costs, improved gasoline quality and reduced original costs.

E. R. Fenske of the Universal Oil Products Company reported at a symposium on advances in refinery techniques that the quality of gasoline produced in these units now far exceeds that produced formerly and at less than half the cost.

Mr. Fenske told the members of the American Institute of Chemical Engineers meeting in Tulsa, Okla., that the improvement of these units was due to the use of better equipment, the reduction of corrosion and greater operating flexibility. Construction and maintenance costs were reduced by the use of stainless steel for most construction materials and by the use of monel metal where severe corrosion was expected.

Hydrogen fluoride alkylation units now are producing gasoline of 105 to 108 octane rating. This exceeds the requirement of present-day autos.

Within ten years automobiles will require gasoline with an octane rating of 105.

R. F. Kress, H. W. Nagel and H. E. Reif of the Sun Oil Company informed the meeting that the production of such premium fuels creates a problem for the average refinery. Two solutions were discussed, the reprocessing of gasoline with a low octane rating and the building of new plants designed to produce gasoline of satisfactory octane rating.

Gasoline utilized in automobiles today has octane ratings ranging from 80 to 90. The octane rating measures the anti-knock quality of gasoline. One hundred was originally considered to be the ideal rating.

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## Acrylonitrile Process

► **THE COST** of plastics and synthetic rubber produced from acrylonitrile will be decreased because of a new process that produces this chemical in one step from propylene, ammonia and air.

A large commercial plant using this process began operation this year at Lima, Ohio, according to a report by Franklin Veztch, engineer of the Standard Oil Company (SOHIO), to the meeting of the American Institute of Chemical Engineers in Tulsa, Okla.

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## Convert Oil Residues

► **THE STEADILY INCREASING DEMAND** for chemical raw materials challenges engineers to develop processes for the conversion of petroleum residues to products of greater value. H. Beuther, J. B. McKinley and R. A. Flinn of the Gulf Research and Development Company, Pittsburgh, told the American Institute of Chemical Engineers meeting in Tulsa, Okla.

Hydrogenation shows the greatest promise for producing more valuable products from petroleum residues as well as a higher product quality, they said.

A pilot plant operation of such a process was described by M. C. Chervenak and C. A. Johnson of Hydrocarbon Research, Inc., New York.

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## Corrosion Prevented

► **CORROSION** is now prevented in the chemical process industry by placing a positive charge on the metal to be protected.

Carl E. Lock, Merle Hutchison and Norman L. Conger of the Continental Oil Company, Ponca City, Okla., reported to the meeting of the American Institute of Chemical Engineers in Tulsa, Okla., that such a positive charge produces "passivity" in the metal.

This method is called anodic protection. Anodic protection has been successfully applied to the sulfuric acid industry.

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## U. S. Oil in Southwest

► **THE SOUTHWESTERN** states of Arizona, New Mexico, Texas, Oklahoma and Louisiana have proven oil reserves estimated at 69% of the total United States

reserves and 82% of the total U. S. natural gas reserves.

John M. Dale of the Southwest Research Institute, San Antonio, Texas, reported to the American Institute of Chemical Engineers meeting in Tulsa, Okla., that these states have approximately three-fourths of the nation's petroleum reserves and 40% of the refining capacity of the nation.

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## Oxygen in New Process

► **OXYGEN** instead of air is being used in a new commercial process that oxidizes hydrocarbons to produce a long series of important organic chemicals at a Celanese Chemical Company plant near Bishop, Texas.

James M. Robertson of that company reported the development of the process to the meeting of the American Institute of Chemical Engineers in Tulsa, Okla.

Previous processes utilized air instead of the 95% pure oxygen to accomplish the oxidation of hydrocarbons.

The petrochemical industry oxidizes hydrocarbons such as propane and butane from natural gas to form a large number of aldehydes, ketones, alcohols and olefin oxides. The oxidation of hydrocarbons is one of the most important sources of these compounds, so important to the chemical industry.

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## TECHNOLOGY

## New Safety Device For Alerting Drivers

► **MOTORISTS** may soon have an electrical safety device that warns them if they approach too close to a pavement edge or center line. Such a device has already been developed by General Motors Corporation and will be tested in Milford, Mich.

A wire in the center of each traffic lane radiates low frequency power. Coils on either side of a car's bumper pick up electrical signals from the road. Thus if the car veers, one of the two coils gets a big boost in its signal and feeds it to one of two warning lights. The signal can also be fed to a speaker to produce an audible warning.

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## TECHNOLOGY

## Surfaces of Highways Can Be Photo-Recorded

► **IF YOU SEE** a strange-looking automobile with elevated antenna-like gadgets rolling along the highway, do not be afraid that it is a new-fangled device to check if you are speeding. It actually will be a photo-recording device for inspecting highway surfaces introduced by the Aero Service Corporation of Philadelphia. A strip camera can keep track of the road surface in a fraction of the time it takes a person walking or driving.

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**HIGHWAY GETS CHECK-UP—**  
*The antenna on top of the automobile is a photo-recording device for inspecting highway surfaces.*