

## IN GENERAL.

The committee is in no way bound to the opinions above expressed, and invites the fullest criticism. Even if you are unable to comment on the above problems we should be very glad to receive a simple description in detail of the methods you are using in the analysis and sampling of crude glycerines and dynamite glycerine. Full credit will be given in the committee's report to any suggestions or improvements adopted, unless otherwise desired.

## SODIUM FOR DRYING TRANSFORMER OILS.

The Roessler & Hasslacher Chemical Company, selling agents for The Niagara Electro-Chemical Co., manufacturers of metallic sodium, communicated the following information on the drying of transformer oils:

*Sodium for Drying Transformer Oils.*—Recent experience in connection with the drying of transformer oils has convinced us that by the use of metallic sodium, moisture may be completely removed from oils which are to be used for insulating purposes. This means, of course, that the insulating qualities of the oil will be raised in a very marked degree.

The method of using sodium for drying hydrocarbon oils is one that is familiar to every chemist who has ever measured the dielectric constants of these oils where the sodium is usually added in the final operation to remove the very last traces of moisture. In the fear that the caustic formed by the reaction of the moisture on the sodium might be left as a liquid or a solid in the hydrocarbon, the chemist has usually thought it necessary to distil off from the sodium. In working on a very large scale this fear has been found to be groundless, and it is absolutely unnecessary to distil the oil.

*Properties of Sodium.*—Sodium has a density of about 0.97 at 15° C. (39° F.) and melts at 97° C. (207° F.). In transformer oil it will sink unless dragged to the surface by hydrogen gas. With water it reacts to form caustic soda and hydrogen. If very much water is present the caustic soda dissolves and in the presence of oil forms a second layer. If very little water is present the caustic soda is formed on the surface of the metallic sodium and may be removed when removing the sodium. When the sodium surface becomes covered with caustic, it is advisable to re-melt under oil, not letting the temperature rise above 120° C. (248° F). After cooling and getting in the shape desired, it is again ready for use for drying more oil. Sodium should always be kept under a good transformer oil.

*Method of Use of the Sodium.*—One method which we have used with our own transformer oils has been the following:

The oil on the granulated sodium is poured off and a good transformer oil poured over the metal. To the oil which is to be treated, and which is put into an open tank or barrel, the sodium is added at first very carefully, about one ounce to the barrel. If much hydrogen is evolved, this will be conclusive proof that there is much water in the oil, and the balance of the sodium should be added carefully and in small amounts. The amount which is to be added depends upon the oil, but as a rule one pound to the barrel is usually much more than is required. The oil is then stirred up three or four times a day for a minute at a time. After several days the oil may be removed and tested, but the

longer it remains over the sodium the better the oil becomes.

Another method used is to put the sodium in the form of sticks in a cylinder of iron wire of about 28 mesh and hang the cylinder in the oil. This method may be used directly with the static which is in use, the only precautions required being those familiar to all electricians in the avoidance of short circuits.

*Results.*—We have repeatedly taken oils which broke down at 3,000 volts and by letting them stand over the sodium for two days have brought their breaking points up to 20,000 volts or higher. Results as good as this had been obtained on a large scale by one of the largest power companies.

## STANDARDIZED SAMPLES.

THE SOLVAY PROCESS COMPANY,  
SYRACUSE, N. Y., February 17, 1909.

Mr. W. D. Richardson, Editor,

*Journal of Industrial and Engineering Chemistry,*  
4306 Forrestville Ave., Chicago, Ill.

DEAR SIR: The editorial in your last number by W. C. Ebaugh upon Standardized Samples appeals to me strongly. It appears that standardized samples of many important materials are already obtainable, but if this work is undertaken by a committee of industrial chemists, I would like to suggest that standardized samples of Bituminous Coal and Coke be the first to be considered. The coal samples might represent perhaps four types, viz., Pocahontas, Pittsburgh Gas, Clearfield and an Illinois or Indiana Coal. These coal samples should be ground to pass a 100-mesh sieve and be standardized particularly as regards volatile matter, sulphur, phosphorus and calorific value. Two coke samples perhaps representing a good by-product and Bee Hive coke should be standardized as regards sulphur and phosphorus content.

It may be urged that coal samples change but if care is taken in keeping the samples the change is almost inconceivable even as regards calorific value and volatile matter in samples which have been stored several years and absolutely uninfluenced as regards sulphur and phosphorus in either coal or coke. It is, however, the two last constituents mentioned which cause the greatest number of controversies,

Yours truly,

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*Laboratory Manager,*

The Solvay Process Co. and Semet-Solvay Co.

## ILLINOIS FUEL CONFERENCE.

The Fuel Conference held at the University of Illinois, March 11th to 13th at Champaign-Urbana, had for its main purpose the bringing together of mine operators, inspectors, bosses and others directly interested in the coal mining industry, for the purpose of inaugurating the work of the Mine Explosion and Mine Rescue station just established at the University. This station is intended to serve the contiguous states of Indiana, Kentucky, Iowa, Missouri and Michigan, by giving instruction to those who may be detailed from the various mining centers, in the use of the oxygen helmets and other devices used in rescue work. This is the first substation to be established after the main one at Pittsburgh, which has recently been put in operation.

The success of the Conference was indicated by the very large attendance, about 150 men being present. The pro-