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PURIFIED CRESOL (CRESYLIC ACID)

Editor of the Journal of Industrial and Engineering Chemistry:

The following comments on "Purified Cresol," by H. C. Hamilton [THIS JOURNAL, **12** (1920), 50], may be of interest.

The author states that the "three cresols are identical in composition, but have different physical and bactericidal properties"—which has, of course, long been recognized as true—but goes on, "These differences, however, are unimportant and nothing of practical value results from their separation," thereby running counter to the experience of most chemists who have handled these products, and counter to the U. S. Pharmacopoeia. *Ortho*-cresol has a markedly different (sharper) odor from the others, is more toxic, and has a coefficient only a little better than phenol itself. Even if pure isomers are too costly to produce in large quantity, a good technical "*meta-para*," approaching the U. S. P. grade or even closer boiling, is preferable to a "*tri*-cresol" containing the isomers as they come.

As to the coloring of cresol, the author states, "Sufficient observations have not been made to arrive at a theory as to the cause or causes of the change and no method has consistently prevented its recurrence." In my experience, exclusion of air and light is not enough, but if the freshly distilled sample is taken off between such limits that *all* water has previously gone over and traces of decomposition products due to excessive or too rapid heating are not yet formed, then the sample will keep colorless indefinitely. Care should be taken to prevent contamination with water vapor or droplets when condensing (take directly from distilling flask's neck, without condenser, after carefully wiping thermometer and inside top of flask); and it is best to use a glass-stoppered bottle of chemical glass, filled to the stopper, without air bubbles, and wrapped in dark paper.

I have seen a "*meta-para* cresol" that was still quite colorless after having been barreled in England, imported, and having lain in the original barrel several weeks on this side. It proved on analysis to be *free from water*. This seems to be most important; next in order are *freedom from impurities* (anything except xylene), *light*, and last of all *air*.

RIVERSIDE, CALIFORNIA
January 10, 1920

EVERETT M. YORK

ALKALI FUSIONS. I—THE FUSION OF SODIUM *p*-CYMENE SULFONATE WITH SODIUM HYDROXIDE FOR THE PRODUCTION OF CARVACROL

Editor of the Journal of Industrial and Engineering Chemistry:

In an article of the above title in the February number of THIS JOURNAL, Gibbs and Phillips have criticized adversely the use of an atmospheric pressure type of fusion apparatus for the manufacture of carvacrol previously suggested¹ by the present authors, and instead advocate the use of autoclaves of a type to stand high pressures. Using very carefully purified chemicals and starting from sodium cymene sulfonate they quote as their highest yield one of 74.7 per cent (0.5 oz.) of the theoretical. If this were corrected for the customary loss in passing from cymene to sodium cymene sulfonate it would probably be fully 5 per cent less. During the past year, under the direction of one of us, students in chemical engineering at Columbia University have been carrying out as a class experiment the preparation of carvacrol by the method of fusion at atmospheric pressure. Better yields are now obtained than we previously quoted, as might be expected with increased familiarity with the process, *e. g.*, a distilled carvacrol yield of 76 per cent (16 lbs.) based on the cymene taken (not the intermediate sodium cymene sulfonate). This includes no allowance for the cymene set free during the fusion reaction, a product lost by the process, unless modified, advocated by Gibbs and Phillips.

¹ THIS JOURNAL, **10** (1918), 982.

In other words we still believe the evidence strongly favors the relatively inexpensive, large capacity, covered fusion kettle working at atmospheric pressure as a manufacturing unit over autoclaves with their troubles due to high pressure, leaks, small capacity, and difficulties of even heating and agitation. However, we do wish to compliment Messrs. Gibbs and Phillips on the ingenious design of their apparatus permitting for experiments of a few grams exact temperature control, stirring, high pressure, and the handling of six fusions simultaneously.

We note with pleasure that Gibbs and Phillips confirm our small scale results that the amount of caustic "could be reduced almost to the theoretic amount required without much effect upon the carvacrol yields."¹ In experiments of plant type we found a slight increase of proportion of caustic soda desirable.

In closing we wish to call attention to the fact that some thymol is formed simultaneously along with the carvacrol. Mr. Allan Leeburger, working on a related problem with one of us, has shown that the carvacrol made from cymene by the process under discussion carries from 6 to 8 per cent of thymol. This would not be detected by the method of analysis² used by Gibbs and Phillips.

ARTHUR W. HIXSON and RALPH H. MCKEE

DEPARTMENT OF CHEMICAL ENGINEERING
COLUMBIA UNIVERSITY, NEW YORK, N. Y.
February 6, 1920

THE CHEMICAL FOUNDATION, INC., PATENTS³

Answering an inquiry from Mr. Thomas C. Dawson of the Electric Boat Company, as to the *validity of the title* of The Chemical Foundation to its patents, Mr. Ramsay Hoguet, patent counsel to The Chemical Foundation, has written the following letter to Mr. Dawson:

January 15, 1920

MR. THOMAS C. DAWSON,
Electric Boat Company,
11 Pine Street, New York.

MY DEAR MR. DAWSON:

Answering your recent inquiry and in connection with the suggestion which has been made to you that a doubt has been raised (presumably by interested persons) as to the validity of the title of The Chemical Foundation to its patents, I submit the following:

The title of The Chemical Foundation to its patents is the same title that the purchasers of other forms of personal property from the Alien Property Custodian, such as the stock of corporations, for instance, have to the property they purchased. The Chemical Foundation obtained its patents by virtue of a sale under the Trading with the Enemy Act, and to determine the question of its title it is simply necessary to see whether the Act authorized such a sale and whether the formalities prescribed by the Act for such a sale have been complied with.

The Trading with the Enemy Act originally conferred upon the Alien Property Custodian only the power to hold as a trustee and to sell in order to prevent waste; but subsequently the Act was amended to give the Alien Property Custodian all of the rights or powers which are appurtenant to the ownership of the property "in like manner as though he were the absolute owner thereof," including the right to sell the property. Such sales (Section 12 of the Act) are required to be made at public auction after advertisement, unless the President in an executive order in which he states his reasons therefor shall otherwise direct.

That the term "property" as used in the Act includes patents and similar intangibles such as were sold to The Chemical Foundation is clear from Section 7(c) of the Act as amended, which specifically includes "patents, copyrights, applications therefor and rights to apply for the same, trademarks" within the definition of property which is subject to the Act. It is, therefore, apparent that the patents, trademarks and copyrights sold to The Chemical Foundation might be sold to it and that The Foundation would obtain a good title thereto provided the requisites of the Act were complied with.

Let me give you a short resumé of what was actually done in

the case of each patent and point out to you how this complies with the provisions of the Trading with the Enemy Act.

A thorough examination of each patent title was made and a report based upon such examination was rendered to the Alien Property Custodian of the enemy ownership of each of the patents investigated. The Alien Property Custodian was thus informed of the fact of enemy ownership and the provisions of Section 7(c) requiring an investigation by the Custodian are complied with. The Custodian then issued a requirement or instrument of seizure under the provisions of Section 7(c), which seizure was served upon all persons who were known to have any connection with the property seized and was recorded in the United States Patent Office. The recording of the instrument of seizure in the Patent Office has the "same force and effect as a duly executed conveyance, transfer or assignment to the Alien Property Custodian so filed and recorded" (Section 7(c) as amended). It will, therefore, be seen that the Alien Property Custodian was properly vested with the patents under the provisions of the Act.

As to the sale, executive orders were made on February 26, 1919, and April 5, 1919, authorizing the Alien Property Custodian to sell upon such terms as he determined, the patent, trademark and copyright property thus seized; and in pursuance of such executive orders a sale was made to The Chemical Foundation and an assignment reciting the executive orders and other proceedings was executed by him on the 10th of April 1919. It is, therefore, evident that all of the statutory requirements concerning seizure and sale were complied with and the title vested in The Chemical Foundation is absolute under the Act.

Congress recognized that it must give to the purchasers from the Alien Property Custodian an absolute title and, therefore, Section 12 of the Act specifically limits any claim to any property sold, to the *proceeds of the sale* and thus prevents a recovery of the property itself. It states "the sole relief and remedy of any person having any claim to any * * * property * * * conveyed * * * to the Alien Property Custodian * * * in the event of sale or other disposition of such property by the Alien Property Custodian shall be limited to and enforced against the net proceeds received therefrom * * *"

As to the operation of the Peace Treaty, the Peace Treaty is unnecessary to validate the title of The Chemical Foundation, since, as I have pointed out above, this title is a valid title. It simply ratifies and confirms the title of The Chemical Foundation and cuts off any possible suits. Thus, Article 297 of the Treaty ratifies every action taken by the Alien Property Custodian and Annex 15 of this article makes it apply specifically to patents and similar property. This article particularly mentions the ratification of sales of enemy property under war legislation and Article 306, which relates to the re-establishment of the International Conventions relating to industrial property, specifically excepts property dealt with under war legislation, as by the Alien Property Custodian.

It seems to me inconceivable that any question should be raised as to the validity of the title of The Chemical Foundation to its patents, if it were understood that this title rests upon the same basis as the title to half a billion dollars worth of property or more, which has been sold by the Alien Property Custodian to American purchasers. There is no essential difference between patents and the stocks of corporations which have been sold to American purchasers by the Alien Property Custodian to such a great extent.

The question of the validity of the title of The Chemical Foundation to its patents has been examined independently by a number of attorneys representing important interests and they have uniformly arrived at the conclusions which I express above. I refer by permission, to Messrs. Kalish & Kalish, Pennie, Davis, Marvin & Edmonds, and Humes, Smith & Tweed, and in addition my attention has been called to an article by Dr. A. Mestern, published in the *Chemische Industrie* of Berlin, in which he also arrives at the conclusion that the title of The Foundation to its patents is valid and that it "will be accordingly in a position to fulfill its aim."

Believe me,

Very truly yours,
RAMSAY HOGUET

FIRE CAUSED BY YELLOW PHOSPHORUS

Editor of the Journal of Industrial and Engineering Chemistry:

The communication by H. LeB. Gray in the February number of THIS JOURNAL on a fire in the organic research laboratory of the Eastman Kodak Company, which fire was caused by yellow phosphorus, reminds me of a somewhat similar fire we

¹ *Loc. cit.*

² Kremers and Schreiner, *Pharm. Rev.*, 14 (1896), 221; Allen, "Commercial Organic Analysis," 4th Ed., 4, 399.

³ *Bulletin 3* of the Chemical Foundation, Inc., February 1, 1920.