

## **Manufacture of new derivatives of lecithins.**

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PROVISIONAL SPECIFICATION.

**"Manufacture of New Derivatives of Lecithins."**

I, CHARLES DENTON ABEL, of Birkbeck Bank Chambers, Southampton Buildings, in the County of London, Consulting Engineer and Chartered Patent Agent, do hereby declare the nature of this invention (as communicated to me from abroad by Actien-Gesellschaft für Anilin-Fabrikation, of Berlin, in the  
5 Empire of Germany, Chemical Manufacturers) to be as follows:—

By the present invention, new halogen derivatives of lecithin may be obtained by treating lecithin, preferably in a chloroform solution, with bromine; the different commercial lecithins shew a different capacity for absorbing or being incorporated with bromine, so that the highest proportion of bromine absorbed  
10 is about 50 *per cent*.

These new derivatives are of great value for medicinal purposes because they offer the possibility of combining the effect of bromine as a tonic remedy with that of lecithin as a nutritive preparation. This is because, unlike lecithin itself, the bromine derivatives are not changed by the action of the digestive  
15 organs, so that the bromine-lecithin itself is resorbed, and not as it would occur otherwise, the products formed by the change of lecithin.

In order to produce these bromine derivatives, lecithin may be dissolved for instance in chloroform and treated with bromine, the mixture being preferably kept at ordinary temperatures by cooling; the proportion of bromine may be  
20 varied according to the kind of the commercial lecithin used. For instance lecithin derived from the yolk of eggs absorbs bromine up to about 30 *per cent*. Within the limits of bromine which the lecithin under treatment can absorb, the proportion of bromine may be varied as desired in every case.

Dated this 11th day June 1904.

ABEL & IMRAY,  
Agents for the Applicant.

COMPLETE SPECIFICATION.

**"Manufacture of New Derivatives of Lecithins."**

I, CHARLES DENTON ABEL, of Birkbeck Bank Chambers, Southampton Buildings, in the County of London, Consulting Engineer and Chartered Patent Agent, do hereby declare the nature of this invention (as communicated to me from abroad by Actien-Gesellschaft für Anilin-Fabrikation, of Berlin, in the  
30 Empire of Germany, Chemical Manufacturers) and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

By the present invention new halogen derivatives of lecithin may be obtained by treating lecithin, preferably in a chloroform solution with bromine; the different commercial lecithins shew a different capacity for absorbing or being

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*Abel's Manufacture of New Derivatives of Lecithins.*

incorporated with bromine, so that the highest proportion of bromine absorbed is about 50 *per cent.* of the weight of the lecithin, the product containing about 30 *per cent* of bromine.

These new derivatives are of great value for medicinal purposes because they offer the possibility of combining the effect of bromine as a tonic remedy with that of lecithin as a nutritive preparation. This is because, unlike lecithin itself, the bromine derivatives are not changed by the action of the digestive organs, so that the bromine lecithin itself is resorbed, and not as would occur otherwise, the products formed by the change of lecithin.

In order to produce these bromine derivatives, lecithin may be dissolved for instance in chloroform and treated with bromine, the mixture being preferably kept at ordinary temperatures by cooling; the proportion of bromine may be varied according to the kind of the commercial lecithin used. For instance lecithin derived from the yolk of eggs absorbs until the bromo-lecithin formed contains about 30 *per cent* of bromine. Within the limits of bromine which the lecithin under treatment can absorb, the proportion of bromine may be varied as desired in every case.

## EXAMPLE:

Ten parts of lecithin are dissolved at ordinary temperature in 40 parts of chloroform; this solution is mixed with 2.6 parts of bromine dissolved in 6 parts of chloroform, the vessel being cooled externally so that the temperature shall not exceed 10—20° C. All the bromine having been introduced the mass is allowed to stand for a short time; it is then filtered and the filtrate evaporated in a vacuum at ordinary temperature or with gentle heating. In order to expel the last portion of chloroform, if the evaporation under diminished pressure has not effected this, some absolute alcohol is added and the mass again exposed to diminished pressure till it is absolutely dry.

In this way there is obtained a nearly colourless mass resembling wax, soluble in chloroform, alcohol and ether, sparingly soluble in acetone, hardly soluble in water; it is easily saponified when heated with alcoholic soda-lye. This bromo-lecithin has no distinct melting point; when heated it softens, above 100° C. it melts and is decomposed. The incorporated proportion of bromine is about 20 *per cent.*

Of course the invention is not limited to the above example nor to the details given therein. As already stated the different kinds of lecithin shew a different capacity for absorbing bromine and so the different commercial lecithins will shew some difference with respect to their being incorporated with bromine. But within the maximum of bromine that can be absorbed, various percentages of bromine may be incorporated so that for instance bromo-lecithin containing 5 *per cent*, 10 *per cent* or 15 *per cent* of bromine may be manufactured according to the present invention. Furthermore the result of the process is not materially changed if the treatment with bromine is carried out without the addition of a solvent.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. The herein described manufacture of new derivatives of lecithins by treating a lecithin with bromine.
2. The new bromo-lecithins manufactured as above set forth.

Dated this 4th day of March 1905.

ABEL & IMRAY,  
Agents for the Applicant.

