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MANUFACTURE OF TETRAETHYL LEAD

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3 Claims. (Cl. 260—11)

This invention relates to an improvement in the method of manufacturing tetraethyl lead by the action of ethyl chloride on lead mono-sodium alloy. More particularly, the invention relates to the activation of the lead sodium alloy by means of a metal chloride.

The successful production of tetraethyl lead by the interaction of lead mono-sodium alloy with ethyl chloride depends upon the speed with which the reaction can be started and maintained at relatively low temperatures. It has been the practice to treat lead mono-sodium alloy with ethyl chloride under pressure, at temperatures varying between 35 and 100° C. By this procedure it has been possible to obtain yields of 80% of the theoretical.

We have now discovered that if very small amounts of certain inorginac salts, such as certain metal chlorides, are added to the lead sodium alloy, either during its formation or by remelting the already formed alloy and incorporating therewith the desired compound, the alloy is activated and higher yields of tetraethyl lead may be obtained when this alloy is subjected to the reaction conditions ordinarily employed in the manufacture of tetraethyl lead from lead sodium alloy and ethyl chloride.

We may use for this purpose such metal chlorides as aluminum chloride or ferric chloride.

The following example indicates by way of illustration one embodiment of our invention:

10 grams of sodium, 90 grams of lead and 0.01 gram of aluminum chloride are placed together in a suitable vessel and heated until the whole mass becomes liquid. The liquid mass is then agitated in any manner desired to secure thorough mixing and is subsequently cooled. The cold alloy is then reduced to a powder and is placed in a reaction vessel capable of withstanding pressure. (Although the degree of fineness of the powder is not an essential feature, we prefer to employ a coarse powder for this purpose). The alloy is then treated with ethyl chloride under pressure at temperatures varying between 35 and 90° C.

It will be understood that the conditions of pressure and temperature may vary as is usual in the known processes of manufacturing tetraethyl lead and for this reason the details of the usual reaction conditions, and of the recovery of tetraethyl lead from the reaction mass, are not given because they are unessential. Our improvement lies in the presence of a chloride of a metal in the alloy, irrespective of the particular conditions employed for the production of tetraethyl lead using ethyl chloride.

It will be apparent that other embodiments of this invention exist and may be practiced without departing from the spirit of the invention, and it is understood that we do not limit ourselves to the foregoing example or description except as indicated in the following patent claims.

We claim:

1. The process of producing tetraethyl lead which comprises reacting under pressure ethyl chloride and an alloy which consists of the product of the fusion together of lead, sodium and a member of the group consisting of aluminum chloride and ferric chloride.

2. The process of claim 1 in which the reaction takes place at temperatures of from 35° C. to 90° C.

3. The process of producing tetraethyl lead which comprises reacting under pressure ethyl chloride and an alloy which consists of the product of the fusion together of approximately 90 parts lead, 10 parts sodium and 0.01 parts aluminum chloride.

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