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INFORMATION REPORT

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SUPPLEMENT TO REPORT NO.

THIS IS UNEVALUATED INFORMATION

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Very pure aluminum

1. In early 1946 Margolin, Russian General Director of Elektrochemisches Kombinat Bitterfeld, and Loevenson, Russian Chief Engineer of the factory, instructed the German engineers to start up the production of very pure aluminum. The Russians specified a minimum purity of 99.99% aluminum. Production started in November 1946, and has continued steadily since then.*

2. The following quantities of very pure aluminum, to the nearest metric ton, have been produced in the factory since the war:

	99.99% and better	99.95-99.98%
1946	7 tons	4 tons
1947	143	140
1948	219	138
1949	340	77
1950	395	41
1951	25 tons per month	-

Purity obtained has steadily increased, and 99.995-99.998% is now achieved regularly.

3. The very pure aluminum is cast in bars (Masseln), which are bound with ordinary binding wire and dispatched without further packing. None of it is machined or treated in any way in the factory before dispatch.

4. Most of the best quality metal was, until the end of 1950, sent to the USSR, but none has been sent there since then. In 1951 the metal was sent mainly to VVB Buntmetall Metallschmelz- und Walzwerk Merseburg and VVB RFT Kondensatorenwerk

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Gera. It is not known what use was made of the metal in the USSR. The German factories use it in the manufacture of packing foil and tubes and in the electro-technical industry.

5. The production process is briefly as follows:

The metal is refined electrolytically in an iron "coffin", which is embedded (bottom and sides) in an electrically conductive calcined "Soederbergmasse". Electric current is lead to the anode through iron contacts inserted into the "Soederbergmasse". Carbon or graphite blocks sheathed in aluminum are used as cathodes. Originally a current of 15,000 amps was used, but now 30,000 amps is used. Aluminum (Huettenaluminium) and copper are placed in the bath, so that an aluminum-copper alloy forms at the bottom. A melt forms over this, consisting of Al l_3, $Bacl_2$, AlF_3 and NaF (NaCl). The very pure aluminum collects as cathode on the surface of the melt and is skimmed off. The chemical processes involved in the refining process are not clear, but apparently fluorine containing (?) melt is a solution which is split into ions when current is passed through it. The cations Na+, Ba++, Al+++ and the anions Cl_2- and F_2- are formed. (AlF6)---anions will also be present through the forming of cryolite. The decisive point is that the most electro-negative metal goes first into solution at the anode, and, so long as aluminum is present in excess and there is a certain proportion of aluminum fluoride present in the electrolyte, only aluminum can be separated. The aluminum, being the most electro-negative element, goes into solution first, and forms AlF_3 with the fluorine. The same amount of AlF_3 decomposes as forms, that is just as much aluminum separates at the cathodes as dissolves at the anode. As a result there is no decomposition voltage to be overcome, but only the electrical resistance of the bath.

Commercial aluminum

6. The new plant for the production of commercial aluminum has been brought into operation and was in late November 1951 producing aluminum at the rate of about 7,000 tons per annum. It was hoped that this could be increased to 15,000 tons per annum in February 1952 if the new plant at Lauta could supply sufficient alumina (Tonerde). Alumina was at present being obtained from Hungary and a factory in Greiz-Doehlau.

Magnesium

7. Little interest was being shown by Russians or Germans in late November 1951 in the proposed new plant for the production of metallic magnesium.

Change in Russian personnel

8. Belyaev left the factory in early November, saying that he would be absent in the USSR for six months for leave and a training course. A Russian named Fëdorov is deputizing for him as General Director during his absence.

* [redacted] Comment: Margolin and Loevenson returned to the USSR early in 1948.

** [redacted] Comment: Probably $Alcl_3$.

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