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高锑低银类铅阳极泥制备五氯化锑新工艺

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摘要: 研究采用控电氯化浸出—低压连续蒸馏—氧化结晶法处理高锑低银类铅阳极泥制备五氯化锑的新工艺。结果表明: 稀盐酸酸洗可有效去除铅阳极泥中的氟和硅; 当溶液电位控制在430 mV以上时, 阳极泥中锑、铜和铋的浸出率均大于99%, 浸出液中三价锑离子的浓度高达310 g/L, 浸出液经冷却结晶后银的入渣率为91.12%, 铅的入渣率为96.35%; 当蒸馏温度为190 °C时, 蒸馏余物中三氯化锑已接近无水三氯化锑熔盐, 无水三氯化锑熔盐通氯氧化—结晶分离所获得的五氯化锑产品质量完全达到试剂级产品的要求, 而金属铁、铋和铜等均残留在结晶分离残渣中, 锑的回收率大于95%。

关键字: 五氯化锑; 铅阳极泥; 氯化浸出; 连续蒸馏; 氧化结晶

Novel technology for preparation of SbCl₅ from lead anode slime with high antimony and low silver content

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Abstract: SbCl₅ was prepared from lead anode slime with high antimony and low silver content using a new technology of chloridization-leaching at controlled potential, continuous distillation at low pressure and oxidization-crystallization. It is found that the fluorine and silicon in the lead anode slime can be removed effectively by washing with diluted hydrochloric acid. When the solution potential is controlled over 430 mV, the leach ratios of Sb, Cu, Bi in the anode slime are all larger than 99%, and the concentration of Sb³⁺ in the leach solution reaches 310 g/L. 91.12% of silver and 96.35% of lead are remained in the leach residue by cooling the leach solution. Controlling the distillation temperature at 190 °C, the SbCl₃ is almost turned to molten salt without water. SbCl₅ can be obtained by oxidizing the molten salt of SbCl₃ with chlorine and

crystallization-separation. The purity of SbCl₅ reaches the level of that of the reagent. Fe, Bi and Cu etc remain in the crystallization-separation residue. The recovery ratio of Sb is larger than 95%.

Key words: antimony pentachloride; lead anode slime; chloridization-leaching; continuous distillation; oxidization-crystallization

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