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PROJECT 9536

705

RECORD CENTER FILE

Route List

1. ~~LS~~
2. ~~Gee Stratton for info.~~
3.
4. RE Curtis
5. ~~R McConahay~~
~~L Squires~~
RECORD CENTER FILE

72202

File

Date 9-24-45

Subject Production Test No. SE-224-T-PA-7

To W. O. Simon

From E. R. Gilbert

Copy No. ~~1~~ A copy 1
L. Squires

BEFORE READING THIS DOCUMENT, SIGN AND DATE BELOW:

L Squires 10/3
Gee Stratton 10-8-45
R.E. Curtis 10-9-45
R McConahay 10-27-45
R B Jennings 11-26-45
B.F. Butts 11-27-45

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AUDIT AND
INVENTORY UNIT

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ORO 10773

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#1 W.C.Simon-B.H.Mackey-M.H.Smith-700
#2 J.N.Tilley - Wilmington
#3 The Area Engineer - Attn: Patent Group
#4 L.Squires
#5 W.C.Kay - J.E.Cole
#6 F.B.Vaughan
#7 J.D.Kliett
#8 M.F.Aakon - G.E.Pesetti - 300
#9 R.M.Beaton
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This Document consists of 4 Pages No.

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SEPTEMBER 24, 1945

PRODUCTION TEST No. SE-224-T-P-7

POTASSIUM HYDROXIDE REMOVAL OF LANTHANUM FLUORIDE PRODUCT CAKE FROM THE CENTRIFUGE

Objective

To improve the completeness of removal of the lanthanum fluoride product cake from the 40 inch Bird centrifuge (E-2).

Background

Both the T and B Areas have experienced difficulty in obtaining complete removal of the LaF3 product cake from the 40 inch Bird centrifuge (E-2). Various modifications of the cake removal procedure have been tested with varying success but no procedure has been found which will give consistently good results. Partial retention from each of several runs have resulted in as much as 50% of a normal run being held up in the E-2 centrifuge bowl following a typical cake removal procedure. One such hold up as this was removed completely by the use of a 50% KOH slurry treatment used as part of a clean out procedure. It is proposed in this test that the KOH normally added directly to the F Cell precipitater (F-1) during metathesis be added via the E-2 centrifuge as part of a regular LaF3 product cake removal procedure.

The proposed change in procedure does not conflict with the operating standards.

Procedure

It is proposed that a series of test runs be carried out in the West Area, beginning with Run T-5-09-F-15 in which slurrying with 50% KOH is substituted for the present two water slurryings. This KOH will go with the cake into the Cell F precipitater and provide the alkali for a normal metathesis. Attached is a copy of the procedure proposed as the basis for the first run. Minor changes in this procedure may be desirable based on close observation of the E-2 Beckman meter during cake removal.

No harmful effect on the following run in Cell E should result as ample water is provided for flushing the KOH from the Cell F system. Replacing part of this water by an acid flush might prove an aid in dissolving any metathesized cake left behind.

The metathesis conditions in Cell F remain the same except for the method of KOH addition and therefore no difficulties are anticipated.

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The Cell E time cycle should be essentially unaffected with a slight reduction resulting in the Cell F time cycle.

The fact that the F-1-PS sample will be taken after the KOH addition necessitates a change in the routine analytical procedure but such samples have been analyzed successfully in the past.

Data

The Technical Department Plant Assistance Group IX will assist operations in monitoring both Cell E and Cell F operations during the test series.

Equipment and Materials

This test will necessitate putting back into service the E-A Pump as the E-2-C scale tank is not equipped with an agitator for making up the 50% KOH.

Responsibility

Technical Department Plant Assistance: E.H.Beaton, E.E.Gilbert, P.H.Lehman. All Operations will be carried out under the usual S Department supervision.

Estimated Completion

These preliminary tests should be completed within one week after the start.

Approval

S Department — Date 9/26/45

Technical Department — Date 9/26/45

Assistant Manager — Date 9/27

ERC:jd

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FLUORIDE PRODUCT - 224 BUILDING

VIII - PRODUCT CAKE REMOVAL

Date _____

Run No. _____

1. With supervisor's approval, plug E-2 to stop and read Wt. Ftr.
   Time OK to proceed _____
   Time E-2 stopped _____
   E-2 Wt. Ftr. _____ lbs. _____

2. Bring E-2 to 10 RPM, start E-2 to F-1 jet and add 700 lbs. of water from E-2D through bowl sprays at not less than 70 psi. (If manometer exceeds 3.0, stop sprays temporarily until bowl is empty) Stop jet at end.
   E-2 at 10 RPM _____
   Time start jet _____
   Time Stop jet _____
   Pump pressure _____
   Lbs. water added _____

3. Plug E-2 to stop.
   E-2 stopped _____

4. Beckman on E-2 at 30 RPM
   E-2 Meter _____ Factor _____

5. Make up 722 lbs. of 50% Potassium Hydroxide in E-A.
   Note: Make up just prior to use so that it will be hot.
   a. Add 297 lbs. of water when used — Lbs. water add _____ Time _____
   b. Start agitator — Time agitator on _____
   c. Add 425 lbs. of Potassium Hydroxide — Lbs. Potassium Hydroxide add _____
   d. Continue agitation until solid is dissolved. — Lbs. total _____ Time _____ Time dissolved _____
   e. Take sample to lab for approval — Sampled by _____ Time OK'd by lab _____

6. Transfer 50% Potassium Hydroxide from E-A to E-2C using the E-A pump
   Time transferred _____

7. With E-2 stopped add 361 lbs. of hot (approx. 85°C) 50% Potassium Hydroxide to E-2 from E-2-C
   Potassium Hydroxide lbs. add _____ Time _____
   Potassium Hydroxide Temp. _____

8. Bring E-2 to 110 RPM and hold 2 min. Plug to stop. Repeat three times.
   Time first slurrying _____ Time 2nd _____ Time 2nd _____ Time 3rd _____

9. Bring E-2 to 110 RPM and hold 2 min. Start E-2 to F-1 jet. Plug to stop.
   Time jet on _____
   E-2 stopped _____

10. Stop E-2 jet when E-2 is empty.
    Time stopped _____

11. Beckman on E-2 at 30 RPM
    Meter _____ Factor _____

12. With E-2 stopped add 361 lbs. of hot (approx. 85°C) 50% Potassium Hydroxide to E-2 from E-2C
    Potassium Hydroxide lbs. add _____ Time _____
    Potassium Hydroxide Temp. _____

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FLUORIDE PRODUCT - 224 BUILDING

Date _____

VIII - PRODUCT CAKE REMOVAL (Cont'd)

Run No. _____

13. Bring E-2 to 110 RPM and hold 2 min. Plug to stop. Repeat three times.

Time first slurrying ___ Time 2nd _____
Time 3rd _____ Time 4th _____

14. Bring E-2 to 110 RPM and hold 2 min. Start E-2 to F-1 jet. Plug to stop.

Time jet on _____
E-2 stopped _____

15. Stop E-2 jet when E-2 is empty.

Time stopped _____

16. Beckman on E-2 at 30 RPM.

Meter _____ Faster _____

17. Flush E-2-C to E-2 with 200 lbs. of water.

Lbs. water add _____ Time _____

18. Bring E-2 to 110 RPM and hold 2 min. Start E-2 to F-1 jet. Plug to stop.

Time jet on _____
E-2 stopped _____

19. Stop E-2 jet when E-2 is empty.

Time stopped _____

20. With E-2 at 10 RPM and with the F-2 to F-1 jet on add sufficient water from E-2-D through the bowl sprays to E-2 to F-1 to bring the total weight in F-1 to 2400 lbs. (approx. 500 lbs.) When jet gasses stop jet.

Lbs. water add _____
Pump pressure _____
Time jet off _____

21. Beckman on E-2 at 30 RPM

Meter _____ Faster _____

22. Obtain supervisor's approval that E-2 Beckman reading is satisfactory.

E-2 Beckman Limit 20x10-14
Approved by _____ Time _____
Supervisor

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