

INTER-COMPANY CORRESPONDENCE

48-12-305

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P OAK RIDGE, TENN.

TO Pilot Plant Supervisors DATE December 3, 1948
LOCATION
ATTENTION
COPY TO E. J. Frederick H. K. Jackson N. J. Rigstad File I-16 (2)
SUBJECT Pilot Plant Processing Schedule For Redox Investigations, Memo No. 2
By Authority Of By [Signature] Date AUG 31 1971

This memo is the second in a series to keep the people in the field fully informed as to the object and schedule of the forthcoming runs for Redox investigations.

FIRST CYCLE

CLASSIFICATION CANCELLED Ted Davis 3/20/95 ADD signature Date Single rereview of CORP declassified documents was authorized by DOE Office of Classification memo of August 22, 1994.

Run 15 RI

This feed has been prepared and is currently being held in A12.

Object: To determine if a run can be made through the dissolving, all feed preparation steps, and column operation that will reproduce the preceding runs (12RI thru 14RI) that were made, using a common feed as starting material.

Columns: The chemical conditions in the columns will be identical to those of the past 10 runs, and the operation of the columns will be unchanged. During the shutdown procedure, used heretofore, it was found that there was a distinctive tailing at the end of the run in that both the uranium losses increased 100 fold and a large amount of fission product activity was carried into the IB column, materially affecting the decontamination factors of these subsequent IBP samples. It was felt that the uranium losses were caused by water being pumped with the MCH into the IA column, causing excessive dilution of the salt in the column and thereby increasing the uranium losses.

ChemRisk Document No. 1619

This document has been approved for release to the public by:

David K. Hoornin 4/24/95 Technical Information Officer Date

Columns: (continued)

To eliminate any possibility of water in the MCH a larger inventory of this material will be carried in A9 and the Sp.Gr. instrument for this ~~function~~ vessel will be watched very closely. This will require that only new MCH be used for 2 or 3 runs to build up this sufficient inventory.

To eliminate carry-over of fission product activity into the IB and IC columns, caused by the continued running of the hexane pump in the IA column, *after* *feed exhaustion*, as is the case in the present shutdown procedure, the shutdown procedure will be modified as follows:

- (a) It is thought that with the elimination of water from the MCH ~~and~~ in A6 the B14 alarm will function normally and will be the time ^{signaling the} ~~signaling~~ end of the run. This time will be called zero time (0:00) for this report and the C8 pump will be shut off.
- (b) At 1:00, the IAX pump is shut off, A17 is sampled, and disposed of.
- (c) All other pump streams (IAS, IBX, IBS, and ICX) are continued for 12 hours, during which time all normal 8 hour samples are taken of the flowing streams which will include all streams except the IAP.
- (d) The usual terminal ^{Composite} sampling is done at the termination of the run.

Run 16RI

This run is a duplication of 15RI, but it is the first one whose feed was prepared by a blended mixture of W-ORNL material. *activity up 3 to 5.*

Run 17RI

This number will be eliminated from the first cycle.

Run 18RI

Object: To determine if urea hydrolysis in the IA feed stream affects extraction decontamination factors as was evidenced in the exceedingly high decontamination factors found in Run 9R, which had its excess acid neutralized by the hydrolysis of urea.

Dissolving: Normal operations of dissolving a mixture of W-ORNL material, using 60% HNO_3 to a Sp.Gr. of 1.83.

Mix Tank: The dissolver solution will be made 1M in HNO_3 in A4. Sufficient ~~mix~~ urea will be added to the column solution in A4 to reduce the acidity to 0.3M and the resultant solution will be held at a temperature of from 80 to 90° C for 48 hours, with intermediate samples being taken at the discretion of day supervision.

Filtration and Columns: Operation will be identical to Run 15RI, using the new shutdown procedure.

Run 19RI (tentative)

Object: To determine the effect ^{on} of extraction decontamination factors ~~on~~ holding the IA feed in contact with un-dissolved ^{metal} material for an extended period of time.

Dissolving: Dissolving will be normal except that the solution will be held in contact for an additional ~~25~~ 24 hours at 90° C after the dissolving has reached a Sp.Gr. of 1.83.

SECOND CYCLE

Runs 12RII thru 14RII

To determine decontamination factors of each of the 3 flowsheets, using an identical feed.

These runs are complete except for 14RII, which will be complete by approximately December 6.

Run 14RII Product

This material was seriously contaminated by the long shutdown procedure in the first cycle, carrying over large amounts of fission products. For this reason, this material is considered unsatisfactory for second cycle feed.

Run 14RII Product (continued)

This material will be jettisoned to the tank farm.

Runs 15RII thru 17RII

These runs will be prepared from the product streams of Runs ~~15RII thru 16RII~~
15 and 16RI.

Object: To duplicate the operation of Runs 12RII thru 14RII except that the
solution in each case will be made .05M in ferrous sulfate.

D. G. Reid

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