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INTERNAL CORRESPONDENCE

CHEMICALS AND PLASTICS

to produce as agents

P. O. BOX 471, TEXAS CITY, TEXAS 77580

TO (NAME)
COMPANY
LOCATION

Mr. C. E. Bowman
TEXAS CITY PLANT

DATE March 1, 1968

RECEIVED
MAR 6 1968
R. N. Wheeler

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SUBJECT Total Pore Volume vs
Dryblending Time

The attached data includes the total pore volume and dryblending times of three ethylene modified QSAN-7 autoclave samples and one competitive PVC counterpart, Geon 102EPF1. These dryblending times were determined using the UCC standard test method WC-324-A. Two plasticizers were used in the dryblending -- Flexol 10-10, the standard plasticizer, and a more viscous plasticizer, Flexol 13-13, which is frequently used in high temperature wire coating compounds. The total pore volume of these samples, as determined by the mercury extrusion porosimeter, was furnished by Dr. J. J. Brezinski of the South Charleston Development Laboratory.

The data suggests that a difference of 0.05 cc/gram total pore volume, as shown between Geon 102EPF1 and the best QSAN-7 dryblend resin in this series, D21-3-27, is significant. A dryblend difference of 7.3 minutes was obtained between the two samples using Flexol 13-13. The effect of total pore volume is also shown between QSAN-7 samples D21-3-27 and D20-6-32 and between samples D24-6-34 and D20-6-32. Pore volume differences between these samples are approximately 0.04 cc/gram.

Although none of the UCC resins evaluated in this series are considered competitive for critical dryblending applications (Flexol 13-13), the data would indicate that a total pore volume of approximately 0.37 cc/gram

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must be achieved to produce an acceptable resin for such critical dry-blending applications. While ethylene modified QSAN-7 from autoclave run D21-3-27 approaches the desired pore volume, autoclave to autoclave variability, and subsequent resin blending, would lead to the conclusion that the total pore volume of Process-7 resin is relatively poor. The desired high level of porosity must be achieved uniformly each autoclave batch and protected in subsequent downstream processing steps.

Please advise of additional work desired.

J. W. Fields
J. W. Fields

JWF/ab

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TABLE I

<u>Resin Type</u>	<u>Autoclave Run No.</u>	<u>UCC Dryblend w/Flexol 10-10</u>	<u>UCC Dryblend w/Flexol 13-13</u>	<u>Total Pore Volume cc/gram</u>
QSAN-7	D24-1-34	7.0 at 84°C	W.N.D.*	0.242
QSAN-7	D20-6-32	7.0 at 84°C	24.5 at 88°C	0.282
QSAN-7	D21-3-27	6.0 at 87°C	16.7 at 87°C	0.322
GEON	102EPF1	5.1 at 86°C	9.4 at 86°C	0.374

*Would not dry