

① JCC-590

② DRAM-100

4/10/75

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UNION
CARBIDE

INTERNAL CORRESPONDENCE

CHEMICALS AND PLASTICS

P. O. BOX 471, TEXAS CITY, TEXAS 77590

TO (NAME) Mr. M. E. Eisenhour
COMPANY Mr. R. L. Frantz
LOCATION Mr. F. L. Johnson

DATE April 9, 1975

COPY TO Mr. R. P. Keefe
Dr. D. R. Montgomery
Mr. A. A. Peterson
Mr. G. T. Pyle
Mr. R. W. Sesler
Mr. G. F. Tacquard

SUBJECT Suspension Resin Residual Monomer

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Final results of residual monomer tests beginning in mid February and taken until unit shutdown are here summarized. Bird feed, dryer feed, dry resin and bin samples for QSAN, QSQL, QSQF, QSQH and VSKK are included. Averages for specific test points are given, which show a wide range from the easier to-strip resin of QSAN to the high residual monomer content resin of QSQF. Also included are the ratios of residual monomer in dryer feed to dry resin which are an indication of the amount of monomer lost across the drying system.

QSAN seems to be the most consistently low residual monomer resin with an average dry resin content of 126 ppm. QSAN made with Klucel showed a slightly lower average, but extensive sampling of this resin in production runs has not been done. QSAL shows a higher dry resin content than QSAN with 274 ppm and also a smaller drop of monomer across the dryer, which indicates it is slightly harder to strip than QSAN. VSKK residual monomer content is quite high at 833 ppm, but it has not been batched stripped yet, which could greatly improve the results in the future. QSQF samples in this report have been batched stripped with steam sparging in the No. 5 blowdown tank at 90°C for 30 minutes. Dry resin results are still relatively high with an average of 515 ppm, though the drop in monomer across the dryer is fairly high. QSQH resin, without batch stripping, contrasts greatly against that stripped at 90° for 30 minutes, with a significant drop of a factor of ten between the two conditions from 1530 ppm to 116 ppm. The only color data available is that for QSQF, with yellowness increasing slightly during stripping and whiteness on the average decreasing by a small factor.

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Mr. M. E. Eisenhower et al

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In general, it appears that the homopolymers of QSAN and QSAL strip easier than copolymers of the VAc and ethylene type. The batch stripping though indicates much progress in the reduction of residual monomer for the harder to strip resins and should provide us with more information as revisions to batch strip with steam sparging in all the blowdown tanks are initiated.

Sincerely,

Ross H. May

Ross H. May

RHM/st
Attachments

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<u>Date</u>	<u>Drying System</u>	<u>Bird Feed</u>	<u>Dryer Feed</u>	<u>Dry Resin</u>	<u>Stripping Conditions</u>
<u>VSKK</u>					
3/13	4	-	452	408	Continuous 75°C
3/14	6	1,453	1,035	869	
3/17	6	2,305	1,893	1,500	
3/18	6		3,997	739	
3/20	6	-	-	653	
Average		1,879	1,844	833	
Dryer feed/dry resin =		2.2			

<u>QSAN</u>					
2/10	5	-	659	84	Klucel - Continuous 80°C
2/11	5	-	-	74	
2/12	5	-	-	143	
Average				100	Klucel
2/15	5	-	863	111	
2/16	5	-	381	228	
2/17	5	-	224	51	
2/21	5	995	770	101	
2/25	4	640	605	120	
2/26	4	656	570	147	
Average		764	567	126	
Dryer feed/dry resin =		4.5			

<u>QSAL</u>					
2/19	3	849	746	388	Continuous 80°C
3/10	4	-	556	163	
3/11	4	-	573	273	
Average		849	625	274	
Dryer feed/dry resin =		2.3			

<u>Date</u>	<u>Drying System</u>	<u>Bird Feed</u>	<u>Dryer Feed</u>	<u>Dry Resin</u>	<u>Stripping Conditions</u>
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QSQF

3/13	7	2,944	2,147	633	90° - 30 minutes
3/14	7	1,330	1,444	238	90° - 30 minutes
3/17	7	5,553	3,417	556	90° - 30 minutes
3/18	7	-	3,997	739	90° - 30 minutes
3/20	7	1,056	1,015	243	90° - 30 minutes
3/21	7	3,067	2,304	680	90° - 30 minutes
Average		2,790	2,387	515	
Dryer feed/dry resin = 4.6					

QSQH

2/28	7	7,537	7,173	1,802	Continuous
3/3	7	9,439	9,199	1,259	Continuous
Average		8,488	8,186	1,530	
Dryer feed/dry resin = 5.4					

3/5	7	4,606	3,173	324	85° - 30 minutes
3/6	7	2,305	2,377	300	85° - 30 minutes
Average		3,455	2,775	312	
Dryer feed/dry resin = 8.9					

3/10	-	-	1,222	183	90° - 30 minutes
3/11	-	638	720	69	90° - 30 minutes
3/12	-	429	502	97	90° - 30 minutes
Average		534	815	116	
Dryer feed/dry resin = 7.0					

Handwritten note:
 7/20/66 - all Dryer feed to all 7
 would increase dryer feed/dry resin ratio.

QSQH BIN DATA OF RESIDUAL VCI

February 22 - March 15, 1975

<u>Date</u>	<u>Bin</u>	<u>Conditions</u>	<u>Residual VCI, ppm</u>
2/27	603	Normal stripping while pumping through vacuum stripper at 70°C	1,504
2/28	602		1,629
2/28	601		1,425
2/28	605		1,017
3/1	604		918
3/1	602		1,773
3/1	605		842
3/2	603		1,136
3/2	601		1,179
3/2	604		1,403
3/3	602		1,077
3/3	606		1,557
3/3	603		1,253
3/4	604		949
3/4	601		917
		Average	1,239
3/5	603	Batch vacuum stripped, unknown temp. and time because of bad thermocouple - off-color resin	232
3/6	605		178
3/6	602		110
		Average	173
3/6	606	Batch vacuum stripped, at 85°C, 30- minutes at 10-15 inches Hg vacuum, acceptable color resin	218
3/7	605		278
3/7	604		270
3/8	601		191
		Average	239
3/8	602	Batch vacuum stripped at 90°C, 30 min., acceptable color resin	69
3/9	601		111
3/9	603		153
3/9	605		173
3/9	602		160
3/10	606		158
3/10	601		83
3/11	603		53
3/12	602		103
3/12	601		91
3/13	603		188
		Average	122

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QSQF BIN DATA OF RESIDUAL VCI

<u>Date</u>	<u>Bin</u>	<u>Residual Monomer</u>	<u>Stripping Conditions</u>
3/13	606	946	90° - 30 minutes
3/14	609	155	90° - 30 minutes
3/15	606	727	80° - 90° - 30 minutes
3/15	603	735	80° - 30 minutes
3/16	606	690	80° - 30 minutes
3/16	602	977	80° - 30 minutes
3/16	603	671	80° - 30 minutes
3/17	601	930	80° - 30 minutes
3/18	602	995	80° - 90° - 30 minutes
3/18	601	1,847	90° - 30 minutes
3/18	603	497	90° - 30 minutes
3/19	604	<u>240</u>	90° - 30 minutes
	Average	687	

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BIN DATA - RESIDUAL MONOMER PPM

<u>Date</u>	<u>Bin</u>	<u>Residual Monomer</u>	<u>Stripping Conditions</u>
<u>QSAN</u>			
2/10	709	78	Continuous 80°C
2/11	706	70	Ditto
2/11	707	185	Ditto
2/15	705	108	Ditto
2/16	702	90	Ditto
2/16	703	50	Ditto
2/17	709	73	Ditto
2/17	704	104	Ditto
2/18	707	111	Ditto
2/18	703	115	Ditto
2/23	703	122	Ditto
2/23	705	200	Ditto
2/23	702	112	Ditto
2/23	703	96	Ditto
2/24	706	80	Ditto
2/25	705	156	Ditto
2/25	411	<u>104</u>	Ditto
	Average	109	
<u>QSAL</u>			
2/19	709	227	Continuous 80°C
2/19	707	216	Continuous 80°C
2/20	702	292	ditto
2/20	707	277	ditto
2/21	708	256	ditto
3/9	408	211	ditto
3/9	409	280	ditto
3/9	702	190	ditto
3/10	705	<u>133</u>	ditto
	Average	231	
<u>VSKK</u>			
3/13	707	603	Continuous 75°C
3/13	704	1,448	ditto
3/13	709	800	ditto
3/14	706	1,239	ditto

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Bin Data - Residual Monomer PPM

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<u>Date</u>	<u>Bin</u>	<u>Residual Monomer</u>	<u>Stripping Conditions</u>
<u>VSKK (continued)</u>			
3/14	707	960	Continuous 75°C
3/15	709	1,418	ditto
3/16	706	924	ditto
3/16	708	909	ditto
3/16	703	846	ditto
3/18	704	606	ditto
3/18	707	1,416	ditto
3/18	708	660	ditto
3/19	701	1,125	ditto
3/19	709	1,035	ditto
3/19	706	609	ditto
3/20	703	1,102	ditto
3/20	701	1,783	ditto
3/21	704	2,016	ditto
3/21	707	3,514	ditto
3/21	701	785	ditto
	Average	1,189	

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