

3 INTER-OFFICE MEMO TENNECO CHEMICALS, INC.

TO J. Sandstedt AT Burlington DATE May 28, 1976
FROM /F.W. Kanzler_ AT Burlington COPY TO W. Miringoff
SUBJECT Slurry Evaluation - EPA Program J.W. Poarch
 P.M. Reed
 L.A. Schappell
 File

As you requested, attached are summary tables of averages and standard deviations for each resin type evaluated under the subject program to date. In addition, tables of individual batch data are also attached - plastisol resins excepted.

All homopolymer and copolymer resin types tested are within the 400 ppm VCM standard for 24-hour average data. The standard deviations seem to indicate, however, that T-250 (as well as T-390 resins) requires additional evaluations.

The data also indicates that fluctuations in the residual VCM levels are stripper and shift dependent.

F.W. Kanzler
F.W. Kanzler

Attachments

FWK/jst

TABLE I
EPA TESTING
AVERAGE AND STANDARD DEVIATION
HOMOPOLYMER

<u>Resin Type</u>	<u>Sample Population</u>	<u>$\bar{x}$</u>	<u>S</u>	<u>n</u>
T-10R	Total	10	10	20
T-200	Total	323	108	20
	Stripper #3	331	111	9
	Stripper #4	277	137	11
T-250	Total	322	317	20
	Stripper #3	370	393	12
	Stripper #4	250	144	8
BR-501	Total	63	143	20
	Stripper #3	39	26	9
	Stripper #4 including B-1279	82	193	11
	Stripper #4 excluding B-1279	24	20	10

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TABLE II
EPA TESTING
AVERAGE AND STANDARD DEVIATION
COPOLYMER

<u>Resin Type</u>	<u>Sample Population</u>	<u>$\bar{x}$</u>	<u>S</u>	<u>n</u>
T-314	Total	117	41	5
T-315	Total	228	93	23
	Stripper #1	170	49	12
	Stripper #2	292	88	11
T-390	Total	263	257	23
	Stripper #1	293	331	12
	Stripper #2	231	148	11
T-392	Total	94	82	5
T-521	Total	10	29	10

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TABLE III
EPA TESTS
AVERAGE AND STANDARD DEVIATION
PLASTISOL

<u>Resin Type</u>	<u>Sample Population</u>	<u>$\bar{x}$</u>	<u>S</u>	<u>n</u>
T-1730	Total	2093	739	6
	Stripper #1	2683	1502	3
	Stripper #2	542	150	3
T-1742	Total	5128	2560	11
	Stripper #1	4376	6030	6
	Stripper #2	1410	3470	5
T-1755	Total	3631	1503	14
	Stripper #3	2726	4310	6
	Stripper #4	609	1644	8
T-1757	Total	4276	2120	6
	Stripper #3	3302	1969	3
	Stripper #4	5233	2136	3
T-0565	Total	2090	1755	20
	Stripper #3	953	694	
	Stripper #4	3223	1820	

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EPA TESTING
SLURRY - Homopolymer

DATE	TIME	REACTOR-#	BATCH-#	STRIPPER-#	RESIN TYPE	PPM UCM
4/12	0955	R-13	B-1410	S-4	T-1012-H-3195 K22	2.3
4/12	1145	R-14	B-1411	S-4	T-1012	10
4/12	1345	R-12	B-1413	S-4	T-1012	7.5
4/12	1630	R-17	B-1414	S-4	T-1012	3.5
4/12	2220	R-15	B-1416	S-4	T-1012	2.2
4/12	1800	R-16	B-1417	S-4	T-1012	3.1
4/13	0035	R-13	B-1419	S-4	T-1012	4.2
4/13	0345	R-14	B-1420	S-4	T-1012	5.3
4/13	0630	R-12	B-1422	S-4	T-1012	5.2
4/13	0930	R-17	B-1424	S-4	T-1012	9.7
4/13	1150	R-15	B-1425	S-4	T-1012	15
4/13	1445	R-16	B-1426	S-4	T-1012	13
4/13	1730	R-13	B-1427	S-4	T-1012	43
4/13	1945	R-14	B-1428	S-4	T-1012	27
4/13	2300	R-12	B-1430	S-4	T-1012	5.3
4/14	0145	R-17	B-1431	S-4	T-1012	3.4
4/14	0720	R-15	B-1422	S-4	T-1012	0.1
4/14	0830	R-16	B-1434	S-4	T-1012	1.3
4/14	1000	R-13	B-1435	S-4	T-1012	13
4/14	1205	R-14	B-1436	S-4	T-1012	11

X 10.2
S 5.6

EPA TESTING
SLURRY-HOMOGENIZATION

DATE	TIME	REACTOR-#	BATCH-#	STRIPPER-#	RESIN TYPE	PPH, VCM
5/10	1200	R-13	B-1201	S-4	T-200-H134-21722	360
5/10	0315	R-10	B-1203	S-4	T-200	485
5/10	0445	R-16	B-1204	S-3	T-200	325
5/10	0610	R-14	B-1205	S-4	T-200	315
5/10	0800	R-11	B-1206	S-3	T-200	365
5/10	0930	R-12	B-1207	S-4	T-200	240
5/10	1130	R-13	B-1208	S-3	T-200	305
5/10	1245	R-17	B-1209	S-4	T-200	310
5/11		R-15	B-1210	S-3	T-200	490
5/11		R-10	B-1211	S-4	T-200	365
5/11	1705	R-16	B-1212	S-3	T-200	240
5/11	1815	R-14	B-1213	S-4	T-200	220
5/11	2015	R-11	B-1214	S-3	T-200	205
5/11		R-12	B-1215	S-4	T-200	215
5/12	0200	R-13	B-1216	S-3	T-200	510
5/12	0345	R-10	B-1217	S-4	T-200	260
5/12	0450	R-10	B-1218	S-3	T-200	230
5/12	0625	R-12	B-1219	S-4	T-200	40
5/12	0800	R-14	B-1220	S-3	T-200	210
5/12	1030	R-16	B-1221	S-4	T-200	275
TOTAL				S-3	S-4	
Σ				321.1	276.2	
Σ				112.0	137.2	

EPA TESTING
SILVRY - HONOLULU

DATE	TIME	REACTOR-#	BATCH-#	STRIPPER	RESIN TYPE	PPM VCM
4/19	1145	R-16	B-1497	S-4	T-250-3125H29	345 276
4/19	1300	R-12	B-1498	S-3	T-250	475
4/19	1445	R-10	B-1499	S-4	T-250	370
4/19	1900	R-5	B-1500	S-3	T-250-3125H28	190 2720
4/19	1800	R-1	B-1501	S-4	T-250	485
4/19	1845	R-13	B-1502	S-3	T-250	1085
4/19	2300	R-7	B-1503	S-4	T-250	195
4/19	2245	R-14	B-1504	S-3	T-250	575
4/19	2400	R-10	B-1505	S-3	T-250	1145
4/20	0300	R-16	B-1506	S-4	T-250	345 2760
4/20	0500	R-12	B-1507	S-3	T-250	50
4/20	0700	R-11	B-1508	S-4	T-250	60
4/20	0820	R-12	B-1509	S-3	T-250	70
4/20	0945	R-14	B-1510	S-4	T-250	190
4/20	1220	R-7	B-1511	S-3	T-250	250
4/20	1345	R-10	B-1512	S-4	T-250	60
4/20	1630	R-13	B-1513	S-3	T-250	15
4/20	1815	R-16	B-1514	S-3	T-250	95
4/20	2005	R-12	B-1515	S-3	T-250	490
4/20	2215	R-15	B-1516	S-3	T-250	115
Total				S-3	S-4	
Σ 322.3				370.4	250.0	
Σ 317.0				392.5	144.2	

ENVIRONMENTAL
SLURRY - HOMOPOLYMER

DATE	TIME	REACTOR-#	BATCH-#	STRIPPER-#	RESIN TYPE	PPH, VCM
4/2	1445	R-10	B-1273	S-4	501-3129765	2 D
4/2	1630	R-12	B-1274	S-3	501	45
4/2	1840	R-15	B-1275	S-4	501	20 B
4/2	2030	R-13	B-1276	S-3	501	35
4/2	2100	R-16	B-1277	S-4	501	30
4/2	2245	R-11	B-1278	S-3	501	25
4/3	0115	R-14	B-1279	S-4	501	650
4/3	0215	R-10	B-1280	S-3	501	55
4/3	0430	R-12	B-1281	S-4	501	20 C
4/3	0630	R-17	B-1282	S-3	501	65
4/3	0700	R-15	B-1283	S-4	501	75
4/3	0850	R-16	B-1284	S-3	501	20
4/3	1045	R-11	B-1285	S-4	501	10 D
4/3	1305	R-10	B-1286	S-3	501	10
4/3		R-12	B-1287	S-4	501	15
4/3	1845	R-13	B-1288	S-3	501	35
4/3	1230	R-14	B-1289	S-4	501	30 B
4/3	2145	R-17	B-1290	S-4	501	20
4/3	2200	R-15	B-1291	S-3	501	25
4/4		R-11	B-1292	S-4	501	9 A

	TOTAL	4/2 2-4	4/2 4-12	4/3 12-2	4/3 2-4	4/3 4-12	4/4 12-2
$\bar{x}$	62.6	2	31.0	123.0	13.2	27.5	9
s	142.5	-	9.6	262.5	4.2	6.5	-
		D	B	C	D	B	A
					S-4		
		S-3		EXCL B-1279		EXCL B-1779	
$\bar{x}$		39.4		2.5		23.7	
s		26.1		192.3		19.6	

SLURRY - (COLUMN)

DATE	TIME	REACTOR-#	BATCH-#	STRIPPER-#	RESIN TYPE	PPM, VCM
4/2	1815	R-5	B-1531	S-1	T-314-2622-37	175
4/2	1930	R-3	B-1532	S-2	T-314-	135
4/2	2130	R-2	B-1533	S-2	T-314-	105
4/2	2245	R-6	B-1535	S-1	T-314-	65
4/2	2320	R-4	B-1536	S-2	T-314-	105

X 117.0
S 45.2

EPA TESTING
SLURRY-COPOLYMER

DATE	TIME	REACTOR-#	BATCH-#	STRIPPER-#	RESIN TYPE	PPM VCM
4/13	0540	R-6	B-1597	S-2	T-315-2160-124	345
4/13	0555	R-3	B-1598	S-1	T-315 - "	170
4/13	0800	R-5	B-1599	S-2	T-315 - "	400
4/13	0815	R-2	B-1600	S-1	T-315 - "	205
4/13	0945	R-4	B-1601	S-2	T-315 - "	425
4/13	1200	R-1	B-1603	S-1	T-315 - "	140
4/13	1450	R-2	B-1604	S-1	T-315 - "	225
4/13	1440	R-7	B-1605	S-2	T-315 - "	135
4/13	1645	R-6	B-1606	S-2	T-315 - "	300
4/13	1720	R-3	B-1607	S-1	T-315 - "	155
4/13	1830	R-5	B-1608	S-2	T-315 - "	245
4/13	1900	R-2	B-1609	S-1	T-315 - "	165
4/13	2115	R-4	B-1610	S-2	T-315 - "	275
4/13	2330	R-1	B-1611	S-1	T-315 - "	125
4/14	0055	R-7	B-1612	S-2	T-315 - "	163
4/14	0445	R-5	B-1613	S-1	T-315 - "	140
4/14	0725	R-2	B-1614	S-2	T-315 - "	280
4/14	0815	R-8	B-1615	S-1	T-315 - "	225
4/14	1230	R-3	B-1699	S-1	T-315 - "	110
4/14	1315	R-1	B-1700	S-2	T-315 - "	240
4/14	1215	R-4	B-1701	S-1	T-315 - "	110
4/14	1440	R-8	B-1702	S-1	T-315 - "	150
4/14	1550	R-2	B-1703	S-2	T-315 - "	330
TOTAL				S-1	S-2	
X				228.2	170.0	291.6
S				42.7	42.2	84.9

EPA TESTING
SLURRY-COPOLYMER

DATE	TIME	REACTOR-#	BATCH-#	STRIPPER	RESIN TYPE	PPM	VCM
4/19	2245	R-5	B-1706	S-1	T-390-C2616-77	170	7.603
4/19	2400	R-2	B-1707	S-2	T-390 -	145	03
4/20	0030	R-4	B-1708	S-1	T-390 -	85	03
4/20	0400	R-1	B-1709	S-2	T-390 -	120	03
4/20	0630	R-2	B-17010	S-2	T-390 -	245	03
4/20	0530	R-2	B-1711	S-1	T-390 -	225	03
4/20	0730	R-7	B-1712	S-1	T-390 -	820	03
4/20	0945	R-6	B-1713	S-2	T-390 -	185	03
4/20	1315	R-9	B-1714	S-1	T-390 -	90	
4/20	1045	R-3	B-1715	S-1	T-390 -	115	03
4/20	1230	R-4	B-1716	S-2	T-390 -	165	
4/20	1725	R-1	B-1717	S-2	T-390 -	100	
4/20	1800	R-5	B-1718	S-1	T-390 -	145	
4/20	1955	R-2	B-1719	S-2	T-390 -	150	
4/20	2030	R-2	B-1720	S-2	T-390 -	225	
4/21	2115	R-7	B-1721	S-1	T-390 -	90	
4/21	2245	R-6	B-1722	S-1	T-390 -	25	
4/21	0030	R-3	B-1723	S-2	T-390 -	140	
5/5	1715	R-1	B-1952	S-1	T-390 -	75	
5/5	1745	R-7	B-1954	S-2	T-390 -	520	
5/5	2000	R-2	B-1955	S-1	T-390 -	460	
5/5	2020	R-6	B-1956	S-2	T-390 -	490	
5/5	2300	R-5	B-1958	S-1	T-390 -	1040	
TOTAL				S-1	S-2		
Σ 262.3				242.5	231.4		
Σ 256.6				331.4	147.9		

SLURRY-CONCENTRATE

DATE	TIME	REACTOR-#	BATCH-#	STRIPPER-#	RESIN TYPE	PPM VCH
4/22	0945	R-6	B-1742	5-12	T-312-2525-4	240
4/22	1115	R-4	B-1744	5-11	T-312	20
4/22	1345	R-3	B-1747	5-12	T-312	55
4/22	1330	R-5	B-1751	5-11	T-312	50
4/22	1525	R-2	B-1752	5-11	T-312	45

X 94.0
S 22.7

EPA TESTING
SLURRY-COOLING

DATE	TIME	REACTOR-#	BATCH-#	STRIPPER	RESIN TYPE	PPM, VCM
4/12	0930	R-10	B-1412	S-3	BR-521-C3007M31	35
4/12	1240	R-11	B-1415	S-3	BR-521-	25
4/12	1245	R-10	B-1412	S-3	BR-521-	110
4/13	0245	R-11	B-1421	S-2	BR-521-	40
4/13	1100	R-10	B-1423	S-3	BR-521-	35
4/13	2130	R-11	B-1429	S-3	BR-521-	30
4/14	0400	R-10	B-1433	S-3	BR-521-	25
4/14	1145	R-11	B-1437	S-2	BR-521-	21
4/15	1900	R-11	B-1453	S-3	BR-521-	51
4/15	2200	R-10	B-1455	S-3	BR-521-	70

X 50.2
S 29.1