

Table 14 PROPYLENE(WITH H2) OPERATION

RUN NO. 9972-6
 CATALYST UCC-104 #9939-74 58 CC 35.0 GM (35.1 GM AFTER THE RUN, +0.1 GM)
 FEED H2:C3H6:H2O @ 1:1:0 MOLE RATIO, 0.5 C3H6 WHSV, CONTINUOUS OVERNITE
 C3H6 MW= 42.0813 DENSITY= 0.51041 GM/CC (@ 73 F)
 TARGET FLOW: C3H6 34.3 CC/HR H2 151 CC/MN, 9.06 L/HR(NOTE: H2 MASS FLOW)
 ACTUAL FLOW: 29.6 CCHR EFFLUENT 9.20 L/HR(METER OFF)

RUN & SAMPLE NO.	9972-6-1	9972-6-2	9972-6-3	9972-6-4	9972-6-5
C3H6 WHSV	0.4	0.4	0.4	0.4	0.1
HRS ON STREAMS	7.1	24.9	30.3	48.9	53.5
PRESSURE, PSIG	150	150	150	150	151
TEMP. C	280	280	280	341	340
FEED C3H6 CC	171.79	532.98	160.46	457.47	36.5
HOURS FEEDING	7.2	17.8	5.7	16.6	4.5
EFFLNT GAS LITER	52.4	157.3	52.6	138.5	26.6
GM AQUEOUS LAYER	0.0	0.0	0.0	0.0	0.0
GM LIQ HYDROCARBON	32.28	65.31	17.94	85.97	3.07
WT FR. LIQ HC/FEED	0.3681	0.2401	0.2190	0.3682	0.1648
				*CHANGING T	
MATERIAL BALANCE WT %	98.37	85.35	95.81	53.86*	100.19
C3H6 CONVERSION %	71.64	61.85	58.56	96.12	86.25
PRDT SELECTIVITY WT %					
CH4	0.0055	0.0233	0.0331	0.0570	0.1624
C2 HC'S	0.0131	0.0128	0.0119	0.0818	0.2907
C3H8	10.7970	8.6405	8.5733	1.3926	11.5642
C4H10	0.4168	0.3198	0.4008	0.6145	2.6316
C4H8=	0.9287	1.0057	1.1858	0.9235	5.0197
C5H12	0.3429	0.1991	0.1919	0.6497	2.3623
C5H10=	0.0350	0.0314	0.0334	0.0530	0.1989
C6H14	4.4915	3.1704	3.2983	3.4234	9.7053
C6H12= & CYCLO'S	22.7645	36.8818	36.0544	13.5246	35.3949
C7+ IN GAS	6.1001	3.6835	9.5362	7.1864	12.1123
LIQ HC'S	54.1051	46.0317	40.6807	72.0935	20.5578
TOTAL	100.00	100.00	100.00	100.00	100.00
SUBGROUPING					
C1 -C4	12.1611	10.0021	10.2050	3.0695	19.6685
C5 -420 F	84.9173	82.1265	84.9540	82.7281	76.7955
420-700 F	2.9217	7.6873	4.8410	12.8326	3.4948
C5 -END PT	87.8389	89.9979	89.7950	96.9305	80.3315

Table 14 (cont.)

ISC/NORMAL MOLE RATIO					
C4	4.5111	1.3601	0.7807	3.1973	4.1134
C5	13.7753	3.5489	5.5301	4.1335	4.3052
C6	3.5023	1.6072	1.4850	2.8733	3.3221
C4=	0.7314	0.6984	0.6417	0.5267	0.5336
PARAFFIN/OLEFIN M RATIO					
C3	0.2636	0.1342	0.1165	0.3292	0.7012
C4	0.4332	0.3069	0.3263	0.6423	0.5061
C5	9.5290	6.1735	5.5876	11.9241	11.5426
LIQ HC COLLECTION					
PHYS. APPEARANCE	OIL CLEAR	OIL CLEAR	OIL CLEAR	OIL YLW	OIL YLW
DENSITY	0.724	0.728	0.710	0.720	0.742
N, REFRACTIVE INDEX	1.4169	1.4166	1.4164	1.4165	1.4277
SIMULATED DISTILLATION					
10 WT % @ DEG F.	147	157	155	169	155
16	156	160	159	177	159
50	222	291	278	300	282
84	362	433	397	453	433
90	392	485	447	521	499
RANGE (16-84%)	106	273	238	276	274
WT % @420 F	94.6	82.9	88.1	80.3	82.8
WT % @700 F	100.0	99.6	100.0	98.1	99.8

Table 1- (cont.) PROPYLENE (WITH H2) OPERATION

RUN NO. 9972-6
 CATALYST UCC-104 #9939-74 58 CC 35.0 GM (35.1 GM AFTER THE RUN, +0.1 GM)
 FEED H2:C3H6:H2O @ 1:1:0 MOLE RATIO, 0.5 C3H6 WHSY, CONTINUOUS OVERNITE
 C3H6 MW= 42.0813 DENSITY= 0.51041 GM/CC (@ 73 F)
 TARGET FLOW: C3H6 34.3 CC/HR H2 151 CCMN, 9.06 L/HR (NOTE: H2 MASS FLOW)
 ACTUAL FLOW: 29.6 CC/HR EFFLUENT 9.23 L/HR (METER OFF)

RUN & SAMPLE NO.	9972-6-6	9972-6-7
	*****	*****
C3H6 WHSY	0.5	0.6
HRS ON STREAMS	72.3	79.0
PRESSURE, PSIG	155	152
TEMP. C	340	340
FEED C3H6 CC	648.76	288.83
HOURS FEEDING	18.8	7.0
EFFLNT GAS LITER	197.6	89.1
GM AQUEOUS LAYER	0.0	0.0
GM LIQ HYDROCARBON	101.69	39.11
WT FR. LIQ HC/FEED	0.3071	0.2653
MATERIAL BALANCE WT %	99.90	96.72
C3H6 CONVERSION %	63.60	59.77
PRDT SELECTIVITY WT %		
CH4	0.0396	0.0401
C2 HC'S	0.0571	0.0590
C3H8	4.3172	4.4432
C4H10	0.4310	0.4564
C4H8=	1.8769	1.9106
C5H12	0.3204	0.2821
C5H10=	0.0724	0.0726
C6H14	3.0862	3.1971
C6H12= & CYCLO'S	32.1118	30.9868
C7+ IN GAS	8.9782	11.5794
LIQ HC'S	48.7092	46.9727
TOTAL	100.00	100.00
SUBGROUPING		
C1 -C4	6.7218	6.9093
C5 -420 F	93.2782	91.7755
420-700 F	0.0000	1.3152
C5 -END PT	93.2782	93.0907

Table 1- (cont.)

ISO/NORMAL MOLE RATIO

C4	1.1860	0.8344
C5	2.2366	1.8553
C6	1.0160	0.7396
C4=	0.5779	0.5840

PARAFFIN/OLEFIN M RATIO

C3	0.0727	0.0636
C4	0.2217	0.2306
C5	4.3019	3.7787

LIQ HC COLLECTION

PHYS. APPEARANCE OIL CLEAR OIL CLEAR

DENSITY 0.716 0.713

N, REFRACTIVE INDEX 1.4132 1.4331

SIMULATED DISTILLATION

10 WT % @ DEG F.	146	150
16	155	156
50	168	173
84	294	306
90	305	368

RANGE(16-84%) 139 150

WT % @420 F 100 97.2

WT % @700 F 100 100

Table 15

PROPYLENE(WITH H2) OPERATION

RUN NO. 9972-7
 CATALYST UCC-104 #9939-74 59 CC 35.0 GM (33.9 GM AFTER THE RUN, -1.1 GM)
 FEED H₂:C₃H₆:H₂O @ 2:1:1 MOLE RATIO, 0.5 C₃H₆ WHSV, CONTINUOUS OVERNITE
 C₃H₆ MW= 42.0813 DENSITY= 0.51041 GM/CC (@ 73 F)
 TARGET FLOW: C₃H₆ 34.3 CC/HR H₂ 310 CCMN, 18.60 L/HR H₂O 7.5 CC/HR
 ACTUAL FLOW: 32.5 CC/HR EFFLUENT 19.15 L/HR 7.15 CC/HR

RUN & SAMPLE NO.	9972-7-1	9972-7-2	9972-7-3	9972-7-4	9972-7-5
C ₃ H ₆ WHSV	0.5	0.5	0.5	0.5	0.5
HRS ON STREAMS	7.3	24.4	31.4	47.5	55.3
PRESSURE, PSIG	150	149	147	142	146
TEMP. C	277	276	276	277	339
FEED C ₃ H ₆ CC	229.68	560.04	195.70	565.70	242.89
HOURS FEEDING	7.4	17.1	6.9	16.1	7.75
EFFLUENT GAS LITER	135.0	326.3	133.8	321.1	141.9
GM AQUEOUS LAYER	46.80	115.32	46.15	107.69	50.99
GM LIQ HYDROCARBON	11.31	16.30	4.87	10.30	23.42
WT FR. LIQ HC/FEED	0.0965	0.0570	0.0488	0.0357	0.1889
MATERIAL BALANCE WT %	96.39	91.47	108.66	87.52	105.78
C ₃ H ₆ CONVERSION %	49.56	41.19	43.11	37.06	64.51
PRDT SELECTIVITY WT %					
CH ₄	0.0321	0.0312	0.0305	0.0373	0.0350
C ₂ HC'S	0.0144	0.0133	0.0086	0.0345	0.0916
C ₃ H ₈	9.9002	7.8514	6.0165	6.1979	3.8257
C ₄ H ₁₀	0.2975	0.5607	0.0954	0.5177	0.8287
C ₄ H ₈ =	0.9039	1.0424	0.5315	1.1562	2.8463
C ₅ H ₁₂	0.3234	0.1898	0.0973	0.1279	0.8844
C ₅ H ₁₀ =	0.0361	0.0299	0.0271	0.0298	0.1172
C ₆ H ₁₄	4.9220	4.1218	4.1261	4.6897	9.4567
C ₆ H ₁₂ = & CYCLO'S	48.6190	56.5851	61.2512	52.6780	34.5065
C ₇ + IN GAS	14.3996	14.3668	17.4462	23.4749	19.2499
LIQ HC'S	20.5518	15.2077	10.3698	11.0566	28.1579
TOTAL	100.00	100.00	100.00	100.00	100.00
SUBGROUPING					
C ₁ -C ₄	11.1481	9.4989	6.6825	7.9437	7.6275
C ₅ -420 F	85.6253	88.4024	91.5962	90.4753	90.1199
420-700 F	3.2266	2.0987	1.7214	1.5810	2.2526
C ₅ -END PT	88.8519	90.5011	93.3175	92.0563	92.3725

Table 15 (cont.)

ISO/NORMAL MOLE RATIO												
C4	1.4853	0.2544	6.0000	0.2031	2.0866							
C5	4.2235	4.5263	3.4848	3.3103	3.6684							
C6	1.6207	1.0549	1.2931	1.1376	3.5866							
C4=	0.7431	0.6352	0.7673	0.5520	0.5275							
PARAFFIN/OLEFIN M RATIO												
C3	0.0934	0.0528	0.0437	0.0350	0.0664							
C4	0.3177	0.5192	0.1733	0.4322	0.2811							
C5	8.7059	6.1765	3.4848	4.1667	7.3361							
LIQ HC COLLECTION												
PHYS. APPEARANCE	OIL	YL	GN	OIL	YL	GN	OIL	YL	GN	OIL	YL	GN
DENSITY	0.732			0.738			0.754			0.723		
N, REFRACTIVE INDEX	1.4267			1.4274			1.4292			1.4310		
SIMULATED DISTILLATION												
10 WT % @ DEG F.	158			158			160			159		0
16	163			163			172			164		0
50	296			297			302			299		0
84	418			407			424			409		0
90	472			457			472			460		0
RANGE (16-84%)	255			244			252			245		0
WT % @420 F	84.3			86.2			83.4			85.7		92.0
WT % @700 F	100.0			100.0			100.0			100.0		100.0

Table 15 (cont.) PROPYLENE (WITH H₂) OPERATION

RUN NO. 9972-7
 CATALYST UCC-104 #9939-74 59 CC 35.0 GM (33.9 GM AFTER THE RUN, -1.1 GM)
 FEED H₂:C₃H₆:H₂O @ 2:1:1 MOLE RATIO, 0.5 C₃H₆ WHSY, CONTINUOUS OVERNITE
 C₃H₆ MW= 42.0813 DENSITY= 0.51041 GM/CC (@ 73 F)
 TARGET FLOW: C₃H₆ 34.3 CC/HR H₂ 310 CC/MN, 18.60 L/HR H₂O 7.50 CC/HR
 ACTUAL FLOW: 32.5 CC/HR EFFLUENT 19.15 L/HR 7.15 CC/HR

RUN & SAMPLE NO.	9972-7-6	9972-7-7	9972-7-8
C ₃ H ₆ WHSY	0.5	0.4	0.5
HRS ON STREAMS	70.7	78.0	94.3
PRESSURE, PSIG	155	155	153
TEMP. C	337	337	337
FEED C ₃ H ₆ CC	508.44	198.22	547.45
HOURS FEEDING	15.3	7.4	16.3
EFFLNT GAS LITER	303.9	146.1	328.8
GM AQUEOUS LAYER	103.80	48.27	109.62
GM LIQ HYDROCARBON	35.85	14.28	29.68
WT FR. LIQ HC/FEED	0.1381	0.1411	0.1062
MATERIAL BALANCE WT %	101.35E	123.39	123.42
C ₃ H ₆ CONVERSION %	64.10E	63.17	50.45
PRDT SELECTIVITY WT %			
CH ₄	NO	0.0000	0.0539
C ₂ HC'S	GAS	0.0000	0.0514
C ₃ H ₈	SAM	2.6718	2.6813
C ₄ H ₁₀	PLE	0.1980	0.1904
C ₄ H ₈ =	---	1.5425	1.4552
C ₅ H ₁₂	---	0.1768	0.2437
C ₅ H ₁₀ =	---	0.7216	0.0737
C ₆ H ₁₄	---	5.6123	5.4110
C ₆ H ₁₂ = & CYCLO'S	---	52.4359	56.1453
C ₇ + IN GAS	---	18.1686	16.5006
LIQ HC'S	---	18.4725	17.3626
TOTAL	---	100.00	100.00
SUBGROUPING	ESTIMATED		
C ₁ -C ₄	4.2499E	4.4123	4.4323
C ₅ -420 F	93.9678E	94.0175	94.1923
420-700 F	1.7824E	1.5702	1.3755
C ₅ -END PT	95.7501E	95.5877	95.5677

Table 15 (cont.)

ISC/NORMAL MOLE RATIO			
C4	---	-----	3.3093
C5	---	-----	1.9320
C6	---	1.7710	1.4756
C4=	---	0.6102	0.5887
PARAFFIN/OLEFIN M RATIO			
C3	---	0.0438	0.0261
C4	---	0.1239	0.1263
C5	---	0.2381	3.2164
LIQ HC COLLECTION			
PHYS. APPEARANCE	OIL YLW	OIL YLW	OIL YLW
DENSITY	0.720	0.710	0.710
N, REFRACTIVE INDEX	1.4286	1.4302	1.4248
SIMULATED DISTILLATION			
10 WT % @ DEG F.	156	157	-
16	159	160	-
50	282	285	-
84	384	387	-
90	407	408	-
RANGE (16-84%)	225	227	-
WT % @420 F	91.7	91.5	-
WT % @700 F	100.0	100.0	-

Table 16 RESULT OF PROPYLENE OPERATION

RUN NO. 9972-8
 CATALYST UCC-103 #9939-46 76 CC 35.00GM (34.72GM AFTER THE RUN, -0.28GM)
 FEED H2:C3H6:H2O @ 1:1:2 MOLE RATIO, 0.5 C3H6 WHSV, CONTINUOUS OVERNITE
 C3H6 MW= 42.0813 DENSITY- 0.51041 GM/CC (@ 73 F)
 TARGET FLOW: C3H6 34.30CC/HR H2 150 CCMN, 9.0 L/HR H2O 15 CC/HR
 ACTUAL FLOW: 34.4 CCHR EFFLUENT 15.23 L/HR AQ LAYR 14 CC/HR

RUN & SAMPLE NO.	9972-08-1	9972-08-2	9972-08-3	9972-08-4	9972-08-5
C3H6 WHSV	0.5	0.5	0.5	0.5	0.5
HRS ON STREAM	6.8	23.0	30.6	48.9	54.7
PRESSURE, PSIG	150	143	144	150	140
TEMP, C	283	281	341	338	338
FEED C3H6 CC	211.43	570.74	249.87	646.25	203.25
HOURS FEEDING	6.8	16.1	7.6	18.3	6.0
EFFLNT GAS LITER	98.6	243.6	112.0	202.5	95.4
GM AQUEOUS LAYER	97.22	224.51	104.17	254.83	82.36
GM LIQ HYDROCARBON	0.78	1.46	2.93	1.66	0.54
WT FR. LIQ HC/FEED	.0072	.0050	.0230	.0050	.0052
MATERIAL BALANCE WT %	101.43	89.64	91.47E	88.51	93.73E
C3H6 CONVERSION %	10.56	7.66	13.21E	11.45	11.44E
PRDT SELECTIVITY WT %			NO GC		NO GC
CH4	0.04	0.07	0.09E	0.11	0.11E
C2 HC'S	0.05	0.06	0.13E	0.15	0.17E
C3H8	13.04	15.53	16.67E	19.63	19.63E
C4H10	5.29	3.39	3.68E	4.33	4.33E
C4H8-	7.66	7.89	6.75E	7.95	7.95E
C5H12	1.51	0.53	0.45E	0.53	0.53E
C5H10-	0.15	0.16	0.15E	0.18	0.18E
C6H14	12.51	9.50	7.14E	8.41	8.41E
C6H12- & CYCLO'S	15.09	22.07	24.51E	28.87	28.87E
C7+ IN GAS	37.74	33.49	21.13E	24.88	24.88E
LIQ HC'S	6.91	7.31	19.30E	4.96	4.95E
TOTAL	100.00	100.00	100.00	100.00	100.00
SUBGROUPING					
C1 -C4	26.09	26.94	27.31E	32.17	32.17E
C5 -420 F	68.24	71.23	65.25E	66.24	65.60E
420-700 F	4.08	1.83	7.18E	1.49	2.08E
700-END PT	1.59	0.00	0.25E	0.09	0.15E
C5 -END PT	73.91	73.06	72.69E	67.83	67.83E

Table 16 (cont.)

ISO/NORMAL MOLE RATIO						
C4	0.4781	0.2797	-	0.1035	-	-
C5	7.5735	-	-	1.0928	-	-
C6	13.9593	7.6118	-	3.7230	-	-
C4=	0.5747	0.5287	-	0.5354	-	-
PARAFFIN/OLEFIN M RATIO						
C2	0.6765	0.4074	-	0.8205	-	-
C3	0.0149	0.0124	-	0.0245	-	-
C4	0.6668	0.4149	-	0.5253	-	-
C5	10.0517	3.1957	-	2.8194	-	-
LIQ HC COLLECTION						
PHYS. APPEARANCE	OIL	OIL	OIL	OIL	TRACE OIL	
DENSITY		0.802				
N. REFRACTIVE INDEX		1.4537				
SIMULATED DISTILLATION						
10 WT % @ DEG F.	356	273	283	263	NOT	
16	410	281	302	277		
50	597	374	396	378	ENO-	
84	732	450	492	491		
90	765	478	532	544	UGH	
RANGE (16-84%)	322	169	190	214		
WT % @420 F	18.0	75.0	61.5	68.0		
WT % @700 F	77.0	100	98.7	98.1		

Table 17

RESULT OF PROPYLENE OPERATION

RUN NO. 9972-9 (LZ 20)
 CATALYST UCC-106 #9939-35 56 CC 35.0 GM(35.77GM AFTER THE RUN, 10.77GM)
 FEED H₂:C₃H₆:H₂O @1:1:2 MOLE RATIO, 0.5 C₃H₆ WHSV, CONTINUOUS OVERNITE
 C₃H₆ MW- 42.0813 DENSITY= 0.51041 GM/CC (@ 73 F)
 TARGET FLOW: C₃H₆ 34.33CC/HR H₂ 150 CCMN, 9.0 L/HR H₂O 15. CC/HR
 ACTUAL FLOW: 34.93 CCHR EFFLUENT 16.43 L/HR AQ LAYR 13.9 CC/HR

RUN & SAMPLE NO.	9972-09-1	9972-09-2	9972-09-3	9972-09-4	9972-09-5
C ₃ H ₆ WHSV	0.5	0.5	0.5	0.5	0.5
HRS ON STREAM	5.6	21.7	27.4	45.9	53.2
PRESSURE, PSIG	164	141	143	143	147
TEMP. C	282	283	282	329	342
FEED C ₃ H ₆ CC	201.99	558.78	201.36	655.06	251.07
HOURS FEEDING	5.6	16.3	5.75	18.5	7.33
EFFLUENT GAS LITER	84.6	263.5	96.4	303.4	117.8
GM AQUEOUS LAYER	72.7	227.56	79.53	257.46	101.41
GM LIQ HYDROCARBON	2.68	0.25	0.70	1.24	1.19
WT FR. LIQ HC/FEED	.0260	.0009	.0068	.0037	.0093
MATERIAL BALANCE WT %	90.36	85.70	100.20	89.11	92.55
C ₃ H ₆ CONVERSION %	17.23	7.37	6.20	8.59	11.41
PRDT SELECTIVITY WT %					
CH ₄	0.07	0.05	0.21	0.14	0.17
C ₂ HC'S	0.13	0.14	0.14	0.23	0.26
C ₃ H ₈	20.52	32.65	26.80	26.37	23.29
C ₄ H ₁₀	4.51	7.42	8.88	6.42	5.52
C ₄ H ₈	6.48	10.53	11.73	8.42	12.78
C ₅ H ₁₂	1.60	0.62	1.21	0.38	2.81
C ₅ H ₁₀	0.14	0.13	0.14	0.19	1.12
C ₆ H ₁₄	9.80	5.71	4.42	4.67	5.62
C ₆ H ₁₂ & CYCLO'S	13.21	21.82	19.24	28.75	24.75
C ₇ IN GAS	26.39	19.55	15.99	19.61	15.81
LIQ HC'S	17.15	1.38	11.16	4.82	8.89
TOTAL	100.00	100.00	100.00	100.00	100.00
SUBGROUPING					
C1 -C4	31.71	50.80	47.84	41.59	41.01
C5 -420 F	64.40	48.89	49.62	55.76	54.10
420-700 F	3.77	0.30E	2.46E	2.47	4.55E
700-END PT	0.12	0.01E	0.08E	0.18	0.34E
C5 -END PT	68.29	49.20	52.16	58.41	58.99

Table 17 (cont.)

ISO/NORMAL MOLE RATIO					
C4	0.5793	0.0518	0.0527	0.0610	0.0624
C5	21.1778	4.9583	16.6667	2.0857	1.6364
C6	16.7875	5.7500	4.5479	2.5316	3.1073
C4+	0.3896	0.3768	0.3337	0.4550	0.3566

PARAFFIN/OLEFIN M RATIO					
C2	0.1444	0.6800	0.7273	0.7423	0.3175
C3	0.0415	0.0253	0.0173	0.0241	0.0291
C4	0.6723	0.6806	0.7310	0.7367	0.4525
C5	10.9670	4.7667	8.2812	1.9286	2.4442

LIQ HC COLLECTION

PHYS. APPEARANCE	OIL
DENSITY	0.769
N. REFRACTIVE INDEX	1.4353

SIMULATED DISTILLATION

10 WT % @ DEG F.	267	326
16	275	363
50	344	429
84	451	555
90	490	610

RANGE (16-84%)	176	192
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WT % @420 F	77.3	45.0
WT % @700 F	99.3	96.2

Table 17 (cont.) RESULT OF PROPYLENE OPERATION

RUN NO. 9972-9 (L7-20)
 CATALYST UCC 106 #9939-35 56 CC 35.0 GM (35.77GM AFTER THE RUN, 10.77GM)
 FEED H₂:C₃H₆:H₂O @ 1:1:2 MOLE RATIO, 0.5 C₃H₆ WHSV, CONTINUOUS OVERNITE
 C₃H₆ MW= 42.0813 DENSITY= 0.51041 GM/CC (@ 73 F)
 TARGET FLOW: C₃H₆ 34.33CC/HR H₂ 150 CCMN, 9.0 L/HR H₂O 15. CC/HR
 ACTUAL FLOW: 34.83 CCHR EFFLUENT 16.43 L/HR AQ LAYR 13.9 CC/HR

RUN & SAMPLE NO.	9972-09-6	9972-09-7
C ₃ H ₆ WHSV	0.5	0.5
HRS ON STREAM	70.7	77.1
PRESSURE, PSIG	148	145
TEMP. C	337	338
FEED C ₃ H ₆ CC	616.67	200.10
HOURS FEEDING	17.4	6.3
EFFLUENT GAS LITER	290.1	100.9
GM AQUEOUS LAYER	244.89	88.56
GM LIQ HYDROCARBON	0.0	0.0
WT FR. LIQ HC/FEED	.0000	.0000
MATERIAL BALANCE WT %	92.50	96.96
C ₃ H ₆ CONVERSION %	6.26	6.93
PRDT SELECTIVITY WT %		
CH ₄	0.14	0.19
C ₂ HC'S	0.24	0.23
C ₃ H ₈	26.91	26.55
C ₄ H ₁₀	5.39	7.40
C ₄ H ₈ -	8.75	9.85
C ₅ H ₁₂	0.30	0.31
C ₅ H ₁₀ -	0.17	0.16
C ₆ H ₁₄	4.86	4.85
C ₆ H ₁₂ - & CYCLO'S	33.01	32.34
C ₇ + IN GAS	20.23	18.11
LIQ HC'S	0.00	0.00
TOTAL	100.00	100.00
SUBGROUPING		
C ₁ -C ₄	41.42	44.23
C ₅ -420 F	58.58	55.77
420-700 F	0.00	0.00
700-END PT	0.00	0.00
C ₅ -END PT	58.58	55.77

Table 17 (cont.)

ISO/NORMAL MOLE RATIO		
C4	0.0589	0.0418
C5	2.7059	1.8000
C6	2.1801	2.2322
C4+	0.4663	0.4328

PARAFFIN/OLEFIN M RATIO		
C2	0.6000	0.7179
C3	0.0174	0.0192
C4	0.5948	0.7251
C5	1.6579	1.8421

LIO HC COLLECTION

PHYS. APPEARANCE

DENSITY

N. REFRACTIVE INDEX

SIMULATED DISTILLATION

10 WT % @ DEG F.

16

50

84

90

RANGE (16-84%)

WT % @420 F

WT % @700 F

Table 16 RESULT OF PROPYLENE OPERATION

RUN NO. 9972-10
 CATALYST CA-Y-62 #9939-37 55 CC 35.00CM (32.59GM AFTER THE RUN, -2.41GM)
 FEED H₂:C₃H₆:H₂O @1:1:2 MOLE RATIO, 0.5 C₃H₆ WHSV, CONTINUOUS OVERNITE
 C₃H₆ MW= 42.0813 DENSITY= 0.51041 GM/CC (@ 73 F)
 TARGET FLOW: C₃H₆ 34.3 CC/HR H₂ 150 CC/MN, 9.0 L/HR H₂O 15 CC/HR
 ACTUAL FLOW: 34.4 CC/HR EFFLUENT 15.3 L/HR AQ LAYR 13.9CC/HR

RUN & SAMPLE NO.	9972-10-1	9972-10-2	9972-10-3	9972-10-4	9972-10-5
C ₃ H ₆ WHSV	0.5	0.5	0.5	0.5	0.5
HRS ON STREAM	7.42	23.7	30.7	48.0	53.6
PRESSURE, PSIG	145	146	146	140	145
TEMP. C	280	280	279	357	340
FEED C ₃ H ₆ CC	245.41	569.48	237.23	608.93	184.37
HOURS FEEDING	7.417	16.333	7.00	17.25	5.5
EFFLUENT GAS LITER	113.4	253.4	110.50	281.10	88.1
CM AQUEOUS LAYER	100.31	228.11	97.81	239.49	76.0
CM LIQ HYDROCARBON	1.68	0.94	0.00	0.00	0.0
WT FR. LIQ HC/FEED	.0134	.0032	.0000	.0000	.0000
MATERIAL BALANCE WT %	94.31	84.85	97.56	93.22	100.42
C ₃ H ₆ CONVERSION %	10.47	9.14	5.99	2.45	2.38
PRDT SELECTIVITY WT %					
CH ₄	0.04	0.04	0.12	0.74	0.21
C ₂ HC'S	0.16	0.14	0.05	0.61	0.29
C ₃ H ₈	20.32	25.71	30.44	37.97	34.21
C ₄ H ₁₀	2.40	8.22	7.57	1.65	15.80
C ₄ H ₈	7.33	11.56	13.43	13.89	13.35
C ₅ H ₁₂	1.79	1.74	3.85	0.33	2.18
C ₅ H ₁₀	0.18	0.22	1.58	0.00	1.07
C ₆ H ₁₄	11.16	8.37	8.63	1.48	5.13
C ₆ H ₁₂ & CYCLO'S	16.66	17.71	12.52	21.42	15.52
C ₇ + IN GAS	26.10	22.12	21.82	18.92	12.24
LIQ HC'S	13.86	4.16	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00
SUB-GROUPING					
C1 -C4	30.25	45.68	51.60	54.86	63.85
C5 -420 F	64.69	52.14	48.40	45.14	36.15
420-700 F	4.85	2.02	0.00	0.00	0.00
700-END PT	0.21	0.17	0.00	0.00	0.00
C5 -END PT	69.75	54.32	48.40	45.14	36.15

Table 18 (cont.)

ISO/NORMAL MOLE RATIO					
C4	3.2138	0.2095	0.4038	0.0732	0.0116
C5	29.6667	51.4000	25.4194	1.3333	1.6667
C6	16.0000	11.5238	9.2533	8.6364	32.0000
C4-	0.4181	0.3406	0.3934	0.0339	0.1338
PARAFFIN/OLEFIN M RATIO					
C2	0.3119	0.6923	0.5294	0.1176	1.1429
C3	0.0229	0.0251	0.0189	0.0093	0.0081
C4	0.3163	0.6867	0.5438	0.1148	1.1428
C5	9.9077	7.8209	2.3671	-	1.9785
LIQ HC COLLECTION					
PHYS. APPEARANCE	OIL	OIL	TRACE OIL		
DENSITY	.	.			
N. REFRACTIVE INDEX	.	.			
SIMULATED DISTILLATION					
10 WT % @ DEG F.	281	333	---	---	---
16	298	364	---	---	---
50	393	425	---	---	---
84	491	538	---	---	---
90	535	606	---	---	---
RANGE (16-84%)	193	174	---	---	---
WT % @420 F	63.5	47.5	---	---	---
WT % @700 F	98.5	96.0	---	---	---

Table 18 (cont.) RESULT OF PROPYLENE OPERATION

RUN NO. 9972-10
 CATALYST CAY.62 #9939-37 55 CC 35.00CM (32.59GM AFTER THE RUN, -2.41GM)
 FEED H₂:C₃H₆:H₂O @ 1:1:2 MOLE RATIO, 0.5 C₃H₆ WHSV, CONTINUOUS OVERNITE
 C₃H₆ MW= 42.0813 DENSITY= 0.51041 GM/CC (@ 73 F)
 TARGET FLOW: C₃H₆ 34.3 CC/HR H₂ 150 CC/MN. 9.0 L/HR H₂O 15 CC/HR
 ACTUAL FLOW: 34.43 CCHR EFFLUENT 15.3 L/HR AO LAYR 13.9 CC/HR

RUN & SAMPLE NO.	9972-10-6	9972 10-7
C ₃ H ₆ WHSV	0.5	0.5
HRS ON STREAM	71.6	77.6
PRESSURE, PSIG	144	146
TEMP. C	340	340
FEED C ₃ H ₆ CC	618.56	207.66
HOURS FEEDING	28.08	6.0
EFFLNT GAS LITER	239.2	97.4
GM AQUEOUS LAYER	249.68	84.48
GM LIQ HYDROCARBON	0.00	0.00
WT FR. LIQ HC/FEED	.0000	.0000
MATERIAL BALANCE WT %	79.99	94.50
C ₃ H ₆ CONVERSION %	1.78	2.15
PRDT SELECTIVITY WT %		
CH ₄	0.39	0.15
C ₂ HC'S	0.30	0.36
C ₃ H ₈	45.31	39.99
C ₄ H ₁₀	3.75	10.13
C ₄ H ₈	5.10	6.68
C ₅ H ₁₂	0.00	3.10
C ₅ H ₁₀	0.00	0.51
C ₆ H ₁₄	3.30	1.44
C ₆ H ₁₂ & CYCLO'S	30.32	29.10
C ₇ + IN GAS	11.56	8.53
LIQ HC'S	0.00	0.00
TOTAL	100.00	100.00
SUBGROUPING		
C1 -C4	54.83	57.31
C5 -420 F	45.17	42.69
420-700 F	0.00	0.00
700-END PT	0.00	0.00
C5 -END PT	45.17	42.69

Table 18 (cont.)

ISO/NORMAL MOLE RATIO		
C4	0.0493	0.0856
C5	-	0.5000
C6	0.7700	3.9444
C4-	0.2190	0.4550

PARAFFIN/OLEFIN M RATIO		
C2	0.7143	1.2759
C3	0.0080	0.0086
C4	0.7095	1.4629
C5	-	5.8462

LIQ HC COLLECTION

PHYS. APPEARANCE

DENSITY

N. REFRACTIVE INDEX

SIMULATED DISTILLATION

10 WT % @ DEG F.	---	---
16	---	---
50	---	---
84	---	---
90	---	---

RANGE (16-84%) ---

WT % @420 F ---

WT % @700 F ---

Table 19

RESULT OF PROPYLENE OPERATION

RUN NO. 9972-13
 CATALYST LZ-105-6 #9939-01 67CC 35.06GM (37.10GM AFTER THE RUN, -2.04GM)
 FEED H₂:C₃H₆:H₂O @ 1:1:2 MOLE RATIO, 0.5 C₃H₆ WHSV, CONTINUOUS OVERNITE
 C₃H₆ MW- 42.0813 DENSITY= 0.51041 GM/CC (@ 73 F)
 TARGET FLOW: C₃H₆ 34.3 CC/HR H₂ 168 CCMN, 10.1 L/HR H₂O 15 CC/HR
 ACTUAL FLOW: 28.45 CCHR EFFLUENT 13.8 L/HR AQ LAYR 10.5 CC/HR

RUN & SAMPLE NO.	9972-13-1	9972-13-2	9972-13-3	9972-13-4	9972-13-5
C ₃ H ₆ WHSV	0.42	0.42	0.42	0.42	0.42
HRS ON STREAM	5.03	23.9	30.9	48.0	55.0
PRESSURE, PSIG	161	157	154	155	156
TEMP. C	280	280	280	280	280
FEED C ₃ H ₆ CC	138.44	534.07	176.19	492.08	193.81
HOURS FEEDING	5.033	18.90	7.00	17.10	7.00
EFFLNT GAS LITER	65.35	235.75	88.90	222.30	88.50
GM AQUEOUS LAYER	49.01	197.72	73.99	180.05	71.50
GM LIQ HYDROCARBON	24.89	108.89	48.98	133.18	55.29
WT FR. LIQ HC/FEED	.3522	.5087	.5447	.5303	.5589
MATERIAL BALANCE WT %	88.72	81.58	93.30	91.23	98.42
C ₃ H ₆ CONVERSION %	96.66	94.11	92.61	90.29	90.41
PROD SELECTIVITY WT %					
CH ₄	0.02	0.01	0.02	0.01	0.01
C ₂ HC'S	0.12	0.10	0.11	0.07	0.07
C ₃ H ₈	9.78	2.67	2.66	2.03	1.78
C ₄ H ₁₀	16.20	4.07	3.99	2.50	2.36
C ₄ H ₈ =	2.24	4.57	5.68	6.27	6.36
C ₅ H ₁₂	12.14	3.93	3.79	2.83	2.49
C ₅ H ₁₀ =	0.07	0.16	0.24	0.23	0.22
C ₆ H ₁₄	7.68	6.40	6.39	7.24	6.90
C ₆ H ₁₂ = & CYCLO'S	0.77	1.68	1.97	1.79	2.55
C ₇ + IN GAS	7.79	9.28	9.80	11.75	12.17
LIQ HC'S	43.19	67.12	65.35	65.29	65.07
TOTAL	100.00	100.00	100.00	100.00	100.00
SUBGROUPING					
C ₁ -C ₄	28.36	11.42	12.46	10.88	10.59
C ₅ -420 F	67.80	82.60	78.52	83.44	80.56
420-700 F	3.84	5.97	9.02	5.68	8.85
700-END PT	0.00	0.00	0.00	0.00	0.00
C ₅ -END PT	71.64	88.58	87.54	89.12	89.41

Table 19 (cont.)

ISO/NORMAL MOLE RATIO					
C4	1.7003	2.4154	2.3051	2.6302	2.3587
C5	2.0616	2.1181	1.9322	2.0860	2.0297
C6	6.0933	10.5051	9.5125	12.1574	12.8041
C4+	0.4936	0.4681	0.4411	0.4371	0.4152
PARAFFIN/OLEFIN M RATIO					
C2	1.1074	0.2107	0.3782	-	-
C3	2.7274	0.4049	0.3180	0.1794	0.1598
C4	6.9926	0.8609	0.6771	0.3849	0.3585
C5	174.2464	23.5243	15.0714	11.9156	10.7620
LIQ HC COLLECTION					
PHYS. APPEARANCE	OIL	OIL	OIL	OIL	OIL
DENSITY	0.792	0.759	0.747	0.745	0.749
N. REFRACTIVE INDEX	1.4510	1.4323	1.4296	1.4266	1.4257
SIMULATED DISTILLATION					
10 WT % @ DEG F.	180	172	182	173	173
16	204	200	209	202	207
50	294	292	307	292	304
84	389	391	409	391	409
90	411	414	444	413	443
RANGE (16-84%)	185	191	200	189	202
WT % @420 F	91.1	91.2	86.2	91.3	86.4
WT % @700 F	100	100	100	100	100

Table 19 (cont.) RESULT OF PROPYLENE OPERATION

RUN NO. 9972-13
 CATALYST LZ-105-6 #9939-01 67CC 35.06GM (37.10GM AFTER THE RUN, +2.04GM)
 FEED H₂:C₃H₆:H₂O @ 1:1:2 MOLE RATIO, 0.5 C₃H₆ WHSV, CONTINUOUS OVERNITE
 C₃H₆ MW- 42.0813 DENSITY- 0.51041 GM/CC (@ 73 F)
 TARGET FLOW: C₃H₆ 34.3 CC/HR H₂ 168 CCMN, 10.1 L/HR H₂O 15 CC/HR
 ACTUAL FLOW: 29.45 CCHR EFFLUENT 13.8 L/HR AQ LAYR 10.5 CC/HR

RUN & SAMPLE NO.	9972-13-6	9972-13-7	9972-13-8	9972-13-9	9972-13-10
C ₃ H ₆ WHSV	0.42	0.42	0.42	0.42	0.42
HRS ON STREAM	71.5	78.7	95.4	102.7	119.1
PRESSURE, PSIG	157	149	150	152	158
TEMP. C	340	339	338	338	338
FEED C ₃ H ₆ CC	481.38	195.52	484.53	190.67	485.79
HOURS FEEDING	16.50	7.25	16.75	7.25	16.40
EFFLUENT GAS LITER	231.10	102.00	234.40	100.40	230.60
GM AQUEOUS LAYER	173.41	77.41	175.42	76.78	171.51
GM LIQ HYDROCARBON	88.99	38.19	93.39	38.59	95.19
WT FR. LIQ HC/FEED	.3622	.3963	.3776	.3965	.3839
MATERIAL BALANCE WT %	92.38	103.08	95.76	102.38	91.11
C ₃ H ₆ CONVERSION %	92.75	92.49	91.23	90.80	89.38
PRDT SELECTIVITY WT %					
CH ₄	0.06	0.05	0.04	0.04	0.04
C ₂ HC'S	0.42	0.42	0.39	0.41	0.40
C ₃ H ₈	7.25	6.05	5.02	4.69	4.22
C ₄ H ₁₀	13.72	12.07	9.98	9.20	7.60
C ₄ H ₈	5.91	7.27	8.52	8.92	9.58
C ₅ H ₁₂	10.50	10.05	8.75	8.09	6.73
C ₅ H ₁₀	0.17	0.42	0.38	0.39	0.30
C ₆ H ₁₄	7.76	8.63	8.94	8.09	9.00
C ₆ H ₁₂ & CYCLO'S	1.19	1.51	1.60	1.74	1.77
C ₇ + IN GAS	10.68	12.22	12.64	13.58	12.62
LIQ HC'S	42.35	41.30	43.75	43.94	47.75
TOTAL	100.00	100.00	100.00	100.00	100.00
SURGROUPING					
C1 -C4	27.37	25.86	23.95	23.26	21.83
C5 -420 F	68.61	70.50	72.42	72.35	74.41
420-700 F	4.02	3.64	3.63	4.39	3.76
700-END PT	0.00	0.00	0.00	0.00	0.00
C5 -END PT	72.63	74.14	76.05	76.74	78.17

Table 19 (cont.)

ISO/NORMAL MOLE RATIO					
C4	2.5130	2.3893	2.4320	2.4708	2.6692
C5	3.0550	2.4097	2.4092	2.3612	2.6237
C6	8.1918	7.8099	8.6750	8.8595	10.0478
C4=	0.4577	0.4327	0.4345	0.4343	0.4544
PARAFFIN/OLEFIN M RATIO					
C2	0.5772	0.3732	0.3282	0.3597	0.3044
C3	1.0466	0.7199	0.5009	0.4444	0.3399
C4	2.2397	1.6013	1.1308	0.9955	0.7659
C5	60.2097	23.5307	22.2957	20.2755	21.7099
L10 HC COLLECTION					
PHYS. APPEARANCE	OIL	OIL	OIL	OIL	OIL
DENSITY	0.770	0.785	0.775	0.738	0.746
N. REFRACTIVE INDEX	1.4494	1.4451	1.4398	1.4396	1.4349
SIMULATED DISTILLATION					
10 WT % @ DEG F.	166	168	162	166	162
16	200	200	196	198	194
50	295	298	294	289	285
84	390	387	384	384	379
90	416	411	408	410	406
RANGE (16-84%)	190	187	188	186	185
WT % @420 F	90.5	91.2	91.7	91.5	92.13
WT % @700 F	100	100	100	100	100

Table 19 (cont.) RESULT OF PROPYLENE OPERATION

RUN NO. 9972-13
 CATALYST IZ-105-6 #9939-01 67CC 35.06GM (37.10GM AFTER THE RUN, +2.04GM)
 FEED H₂:C₃H₆:H₂O @ 1:1:2 MOLE RATIO, 0.5 C₃H₆ WHSV, CONTINUOUS OVERNITE
 C₃H₆ MW= 42.0813 DENSITY= 0.51041 GM/CC (@ 73 F)
 TARGET FLOW: C₃H₆ 34.3 CC/HR H₂ 168 CCMN, 10.1 L/HR H₂O 15 CC/HR
 ACTUAL FLOW: 28.45 CCHR EFFLUENT 13.8 L/HR AQ LAYR 10.5 CC/HR

RUN & SAMPLE NO.	9972-13-11	972-13-12	972-13-13	972-13-14	9972-13-15
C ₃ H ₆ WHSV	0.42	0.42	0.42	0.42	0.42
HRS ON STREAM	126.8	143.1	150.7	166.9	172.7
PRESSURE, PSIG	154	150	157	153	148
TEMP. C	338	370	370	370	370
FEED C ₃ H ₆ CC	210.8	484.53	213.43	473.83	156.69
HOURS FEEDING	7.7	16.3	7.58	16.25	5.75
EFFLNT GAS LITER	106.9	238.9	110.6	237.0	83.5
GM AQUEOUS LAYER	80.74	169.10	78.81	168.16	59.56
GM LIQ HYDROCARBON	41.30	80.04	37.28	75.14	26.25
WT FR. LIQ HC/FEED	.3838	.3236	.3539	.3107	.3282
MATERIAL BALANCE WT %	96.71	100.42	106.26	95.88	109.56
C ₃ H ₆ CONVERSION %	89.22	88.41	87.83	85.46	84.55
PRDT SELECTIVITY WT %					
CH ₄	0.04	0.13	0.12	0.12	0.12
C ₂ HC'S	0.38	0.78	0.76	0.80	0.86
C ₃ H ₆	3.95	7.46	6.55	6.10	5.82
C ₄ H ₁₀	7.41	12.14	10.63	9.56	9.02
C ₄ H ₈	9.99	10.82	11.07	13.26	13.82
C ₅ H ₁₂	6.44	9.06	8.13	7.04	6.73
C ₅ H ₁₀	0.30	0.51	0.47	0.38	0.41
C ₆ H ₁₄	9.02	8.53	8.68	8.86	9.33
C ₆ H ₁₂ & CYCLO'S	1.89	1.79	1.93	1.93	2.18
C ₇ + IN GAS	14.82	11.92	14.02	13.59	15.07
LIQ HC'S	45.76	36.85	37.64	38.35	36.66
TOTAL	100.00	100.00	100.00	100.00	100.00
SUBGROUPING					
C ₁ -C ₄	21.77	31.34	29.12	29.85	29.63
C ₅ -420 F	74.62	65.96	68.20	67.68	68.09
420-700 F	3.62	2.70	2.68	2.47	2.28
700-END PT	0.00	0.00	0.00	0.00	0.00
C ₅ -END PT	78.23	68.66	70.88	70.15	70.37

Table 19 (cont.)

ISO/NORMAL MOLE RATIO						
C4	2	17	2.28601	2.2867	2.2908	2.3034
C5	7	51	2.2856	2.2850	2.4651	2.4084
C6	10	39	8.7252	9.0431	10.7955	10.7362
C4=	0.4403		0.4291	0.4341	0.4414	0.4416
PARAFFIN/OLEFIN M RATIO						
C2	0.2506		0.5230	0.4913	0.4576	0.4499
C3	0.3129		0.5474	0.4560	0.3445	0.3060
C4	0.7166		1.0827	0.9277	0.6961	0.6300
C5	20.7721		17.2261	16.7365	18.0000	16.0911
LIG HC COLLECTION						
PHYS. APPEARANCE		OIL	OIL	OIL	OIL	OIL
DENSITY		0.762	0.740	0.759	0.771	0.770
N. REFRACTIVE INDEX		1.4337	1.4458	1.4434	1.4411	1.4381
SIMULATED DISTILLATION						
10 WT % @ DEG F.		164	164	164	162	163
16		196	197	196	194	194
50		288	290	289	286	285
84		381	376	375	372	371
90		407	403	402	398	397
RANGE(16-84%)		185	179	179	178	177
WT % @420 F		92.1	92.67	92.89	93.55	93.78
WT % @700 F		100	100	100	100	100