

Hydrocarbon type:										
Saturates										
Olefins										
Aromatics, total									87.0	
Aromatics, polynuclear										
Summation number										
Analysis point, °F										
H/C atom ratio										
Elemental analysis, wt%:										
C	89.70	88.28	89.17							
H	7.58	7.42	9.77							
N	1.46	1.31	0.337							
S	0.55	0.56	0.02							
O	2.18	2.27	0.33							
Trace metal analyses, ppm:										
V										
Ni										
Na										
K									0.6	
Mg										
Ca									<0.06	
Pb									<0.1	
Cu										
Fe									4.8	
Si									0.2	
Zn										
Ba										
Mn										
Mo										
W										
Tl									16.0	
Cl									>670.0	<10.0

(b) Synthoil from West Virginia coal data from ref. 10

Property	Test	Distillate categories			
		Total crude	<207°C (405° F) 4.4 percent of crude	207°-363° C (405°-685° F); 46.2 percent of crude	363°-531° C (685°-988° F); 46.2 percent of crude
Gravity, ° API (specific)		---	19.7 (0.936)	11.4 (0.990)	---
Boiling range:					
Initial boiling point, °F:					
5 %	Bureau of				
10 %	Mineral	329	329	405	685
20 %	method				
30 %					
40 %					
50 %					
60 %					
70 %					
80 %					
90 %					
Distillate		195 at 685			
Final boiling point, °F:					
Pour point, °F			405	685	988
Flashpoint, °F	D-97	40	<5	<5	
Viscosity at 100 °F, SUS		2026	16	57	
at 100 °F, kin, cS		1450	2.27	9.36	
at °F					
Ash, wt %					
Ash: melt temperature, °F					
Heat of combustion, Btu/lb					
Carbon residue (Conradson), wt %					
Carbon transfection, wt %	D-574	11.2	1.29	2.33	1.44
Thermal stability					
Electrical conductivity					
Water					
Sediment					
Neutrality					
Corrosion					

Hydrocarbon type:								
Saturates		27.1	16					9.7
Olefins		3.2						
Aromatics, total		10.8	79.0					84.0
Aromatics, polynuclear		3.2	51.1					72.3
Luminometer number								
Absorptivity, %								
H/C atom ratio								
Elemental analyses, wt %:								
C								
H								
N				0.423		0.724		1.187
S								
O				0.20		0.10		0.46
Trace metal analyses, ppm:								
V								
Ni								
Na								
K								
Mg								
Ca								
Pb								
Cu								
Fe								
Si								
Zn								
Ba								
Mn								
Mo								
W								
Pt								

TABLE 7. - Continued.

(c) Synthoil 1, from West Kentucky bituminous coal (5.3 percent sulfur) data from ref. 11^b

Property	Test	Distillate categories				
Gravity, ° API (specific)						
Boiling range:						
Initial boiling point, ° F						
5 %						
10 %						
20 %						
30 %						
40 %						
50 %						
60 %						
70 %						
80 %						
90 %						
95 %						
Final boiling point, ° F						
Pour point, ° F						
Flashpoint, ° F						
Viscosity at ° F						
at ° F						
at ° F						
Ash, wt %						
Ash: melt temperature, ° F						
Heat of combustion, Btu/lb						
Carbon residue						
Carbon remainder, wt %						
Thermal stability						
Electrical conductivity						
Water						
Sediment						
Neutrality						
Corrosion						

(f) Synthoil (whole crude, 309°-650° F and 650°-698° F cuts, and residuals (698° F+)), data from ref. 12^c

Property	Test	Distillate categories			
		Whole crude	509°-650° F cut	650°-698° F cut	Residuals (698° F+)
Gravity, ° API (specific)		5.9	15.9	9.4	-4.3
Boiling range:					
Initial boiling point, ° F		300	509	650	695
5% T_b		440			
10% T_b		469			
20% T_b		521			
30% T_b		573			
40% T_b		630			
50% T_b		688			
52% T_b		698			
70% T_b					
80% T_b					
90% T_b					
95% T_b					
Final boiling point, ° F			650	698	
Pour point, ° F		25	-30	20	>120
Flashpoint, ° F					
Viscosity at 80° F, cS		1950			
at 100° F, cS		673	7.29	15.9	2132 at 175° F
at 210° F, cS			1.85	3.91	359.1
Ash, wt%					
Ash: melt temperature, ° F					
Heat of combustion, Btu/lb					
Carbon residue					
Carbon nonbottoms, wt%					
Thermal stability					
Electrical conductivity					
Water					
Sediment Combined		0.05			
Neutrality	D-664	0.36			
Corrosion					

Sauvignac										
Chateau										
Acidalls, total										
Acidalls, polyacidic										
Luminometer number										
Acid allc point, °F	38	40								
H/C atom ratio										
Elemental analysis, wt %:										
C										
H										
N	0.79	0.32	0.47	1.22						
S	0.22	0.14	0.12	0.31						
O										
Trace metal analysis, ppm:										
V								7.5		
Ni								1.0		
Na										
K										
Mg										
Ca										
Pb										
Cu										
Fe									419.0	
Si										
Zn										
Ba										
Aln										
Mo										
W										
Tl										

Data on other cuts also contained in reference.

Property	Test	Distillate categories				
		Sample J-7992				
Gravity, ⁶⁰ API (specific)		--(1.10)				
Boiling range:						
Initial boiling point, °F		341				
5 %		479				
10 %		534				
20 %		591				
30 %		634				
40 %		715				
50 %		800				
60 %		>890				
70 %						
80 %						
90 %						
95 %						
Final boiling point, °F						
Pour point, °F		40				
Flashpoint, °F		222				
Viscosity at 100 °F, cS		2509				
at 210 °F, cS		28.6				
at °F						
Ash, wt %	P-487	0.68				
Ash: melt temperature, °F						
Heat of combustion, Btu/lb		16,831				
Carbon residue (Conradson), wt %		18.9				
Carbon remainder, wt %						
Thermal stability						
Electrical conductivity						
Water						
Sediment						
Neutralized		12				
Corrosion						

Hydrocarbon type:																				
Saturates																				
Olefins																				
Aromatic, total																				
Aromatic, polynuclear																				
Luminaire number																				
Aniline point, °F																				
H/C atom ratio																				
Elemental analyses, wt%:																				
C	87.62																			
H	7.97																			
N	0.97																			
S	0.43																			
O	2.08																			
Trace metal analyses, ppm:																				
V	2																			
Ni	1																			
Na	29																			
K	116																			
Mg	31																			
Ca	27																			
Pb	5																			
Cu																				
Fe	275																			
Si	1348																			
Zn																				
Ba																				
Mn																				
Mo																				
W																				
Ti	150																			
Al	884																			

Property	Test	Institute categories				
		Synthetic				
Gravity, ° API (specific)		4.0				
Boiling range:						
Initial boiling point, °F						
5 °						
10 °		409				
20 °						
30 °						
40 °						
50 °						
60 °		580				
70 °						
80 °						
90 °						
Final boiling point, °F						
Final boiling point, °F		20				
Final point, °F						
Viscosity at 100 °F, cS		143.5				
at 100 °F						
at 100 °F						
Ash, wt%		0.26				
Ash: melt temperature, °F						
Heat of combustion, Btu/lb		17 245				
Carbon residue		10.2				
Carbon remainder, wt%						
Thermal stability						
Electrical conductivity						
Water						
Sediment						
Neutrality						
Corrosion						

Hydrocarbon type:												
Saturates												
Olefins												
Aromatics, total	64											
Aromatics, polynuclear	22											
Laminimeter number	Too dark											
Axline point, °F	1.26											
H/C atom ratio												
Elemental analyses, wt %:												
C												
H												
N	0.810											
S	0.21											
O												
Trace metal analysis, ppm:												
V	<4.8											
Ni												
Na	4.29											
K	1.01											
Mg	2.11											
Ca	3.35											
Pb	<0.48											
Cu												
Fe												
Si												
Zn												
Ba												
Mn												
Mo												
W												
Ti												

(a) SRC products from Kentucky high-sulfur bituminous coals; data from ref. 14

Property	Total	Distillate categories			
		Solvent-refined coal	Light oil	Mash solvent	Process solvent
Gravity, °API (specific)					
Boiling range:					
Initial boiling point, °F					
5 %					
10 %					
20 %					
30 %					
40 %					
50 %					
60 %					
70 %					
80 %					
90 %					
95 %					
Final boiling point, °F					
Pour point, °F					
Flashpoint, °F					
Viscosity at					
at					
at					
at					
Ash, wt %					
Ash: melt temperature, °F					
Heat of combustion, Btu/lb					
Carbon residue					
Carbon ramolom, wt %					
Thermal stability					
Electrical conductivity					
Water					
Sediment					
Neutrality					
Corrosion					

Hydrocarbon type: ^a																
Saturates																
Olefins																
Aromatics, total																
Aromatics, polycyclic																
Laminometer number																
Boiling point, °F																
H/C atom ratio																
Elemental analyses, wt%:																
C																
H																
N																
S																
O																
Trace metal analyses, ppm:																
V																
Ni	6.0				2.1											
Nh																
K																
Mg																
Ca																
Pb																
Cu																
Fe	270				100											
Si																
Zn																
Bn	8.1				7.2								0.387/-0.04			
Mn																
Mo																
W																
Tl																
Cr													0.044/-0.009			
Ae													0.0013/-0.001			

^aSome analysis of hydrocarbon type citing ppm of individual constituents, but not in a manner that can be used to provide numbers in this table.

Property	Test	Distillate categories			
		92 NB-1	92 NB-2	93 NB-1	93 NB-2
Gravity, °API (specific)					
Boiling range:					
Initial boiling point, °F					
5 %					
10 %					
20 %					
30 %					
40 %					
50 %					
60 %					
70 %					
80 %					
90 %					
95 %					
Final boiling point, °F					
Pour point, °F					
Flashpoint, °F					
Viscosity at					
at					
at					
Ash, wt %		0.19	0.31	0.38	0.25
Ash: melt temperature, °F (SRC melt temp.)		112	367	327	356
Heat of combustion, Btu/lb (unspec.)		15 719	15 731	15 857	15 673
Carbon residue					
Carbon residue bottom, wt %					
Thermal stability					
Electrical conductivity					
Water					
Sediment					
Neutrality					
Corrosion					

Hydrocarbon type:																		
Saturates																		
Olefins																		
Aromatics, total																		
Aromatics, polynuclear																		
Luminescence number																		
Acid value, % F																		
H/C atom ratio																		
Elemental analyses, wt%:																		
C	87.12	87.68	86.62	86.38														
H	6.56	6.12	5.62	5.45														
N	1.87	1.89	1.91	1.95														
S	1.07	0.88	1.10	1.09														
O	3.19	3.32	4.26	4.92														
Trace metal analyses, ppm:																		
V																		
Ni																		
Na																		
K																		
Mg																		
Ca																		
Pb																		
Cu																		
Fe																		
Si																		
Zn																		
Flu																		
Mn																		
Mo																		
W																		
Ti																		

^bConsiderable data on streams throughout the pilot plant. However, it is not apparent which are product output streams and which are internal streams only, other than the SRC products contained on this sheet.

Property	Test	Exhaustive categories		
		SRC solid	Light distillate	Distillate fuel oil
Gravity, °API (specific)		-10.3	39.	2.0
Boiling range:				
Initial boiling point, °F		900+	100	400
5 %				
10 %				
20 %				
30 %				
40 %				
50 %				
60 %				
70 %				
80 %				
90 %				
95 %				
Final boiling point, °F				
Pour point, °F		400		900
Flashpoint, °F				166
Viscosity at 100°F, SUS				50 (7.2 cSt)
at °F				
at °F				
API, wt %				
API: melt temperature, °F				
Heat of combustion, Btu/lb (higher)		16,000	19,048	17,300
Carbon residue				
Carbon ramabottom, wt %				
Thermal stability				
Electrical conductivity				
Water				
Sediment				
Neutrality				
Corrosion				

Hydrocarbon type:																					
Saturates																					
Olefins																					
Aromatics, total																					
Aromatics, polynuclear																					
Lontheometer number																					
Aniline point, °F																					
H/C atom ratio																					
Elemental analysis, wt%:																					
C						84.0			82.2												
H						11.5			7.9												
N						0.4			0.9												
S						2.0			0.1												
O						0.8			0.1												
Trace metal analysis, ppm:																					
V																					
Ni																					
Na																					
K																					
Mg																					
Ca																					
Pb																					
Cu																					
Fe																					
Si																					
Zn																					
Rn																					
Mn																					
Mo																					
W																					
Tl																					

Property	Test	Facilities categories		
		Filtered SRC ^a	SRC (filtrate) ^b	Upgraded SRC ^c
Gravity, °API (specific)		-5.8 (1.1257)	2.5 (1.0560)	9.6 (1.0028)
Bolling range:				
Initial boiling point, °F				
5 %		400	385	433
10 %		520	428	555
20 %		550	435	600
30 %		585	450	660
40 %		620	462	718
50 %		652	475	780
60 %		685	498	850
70 %		740	535	940
80 %		825	600	1000 at 652
90 %		1020	700	
93 %			875 at 892	
Final boiling point, °F				
Pour point, °F		50		51
Flashpoint, °F				
Viscosity at 100°F, cS		884 (1900 cS)		
at 210°F, cS		20.45		32.69
at 250°F, cS				14.43
Ash, wt%			0.01	0.001
Ash: melt temperature, °F				
Heat of combustion, Btu/lb				
Carbon residue (Conradson), wt%				16.31
Carbon ramabottom, wt%				
Thermal stability				
Electrical conductivity				
Water				
Sediment				
Neutrality				
Corrosion				

Hydrocarbon type:									
Solvent type:									
Class:									
Subclass:									
Aromaticity, percent:									
Flash point, °F:							91.7		
Boiling point, °F:									
Refractive index, n _D ²⁰ :									
Elemental analysis, wt%:									
C		86.77					90.01		
H		6.90					8.76		
N		1.28					0.548		
S		0.72					0.92		
O		3.81					0.02		
Trace metal analysis, ppm:									
V									
Ni									
Na									
K		0.08							
Mg									
Ca		0.4							
Pb		0.3							
Cu									
Fe									
Si		1.8							
Zn		6.3							
In									
Mn									
Mo									
W									
Ti									
Al		34.0							
		5.0							

Containing 65 percent process solvent (3296-19 p. 57).
 Gas received (3296-93 p. 66).
 3392-64 p. 79.

(e) SRC (light organic liquid and recycle solvent) data from ref. 3

Property	Test	Distillate categories		
		Light organic liquid (J-7951)	Recycle solvent (J-7950)	
Gravity, °API (specific)	 (0.9202) (1.039)	
Boiling range:				
Initial boiling point, °F		191	376	
5 %				
10 %		284	398	
20 %		325	405	
30 %		335	436	
40 %		348	454	
50 %		365	492	
60 %		375	526	
70 %		397	546	
80 %		407	505	
90 %		415	657	
95 %				
Final boiling point, °F		561	877	
Pour point, °F		65	45	
Flashpoint, °F		92	203	
Viscosity at 100°F, cS		1.441	3.88	
at 210°F, cS		0.65	1.466	
at °F				
Ash, wt%	D-482	18.	3.	
Ash: melt temperature, °F				
Heat of combustion, Btu/lb		17 326	16 715	
Carbon residue (Conradson), wt%		0.01	0.08	
Carbon remanent, wt%				
Thermal stability				
Electrical conductivity				
Water				
Sediment				
Neutralized, wt%		0.05	0	
Neutrality				
Corrosion				