

1573014-012

LABORATORY ANALYSIS SHEET

ANVIL POINTS OIL SHALE RESEARCH CENTER

Date Sampled 4-28-67

Run No. C1034 START UP

Sample Time: RS 06:15; SS _____

FISCHER ASSAY

RAW SHALE SPENT SHALE

29.0 _____ Gal/Ton
0.909 _____ S.G., g/ml
11.0 _____ Oil, wt %
1.7 _____ Water, wt %
85.1 _____ Sp. Shale, wt %
2.2 _____ Gas & Loss, wt %
slight _____ COKING TENDENCY

RETORT SHALE MOISTURE _____ wt %

RAW SHALE FISCHER ASSAY MOISTURE 0.69 wt %

MINERAL CO₂

17.1 _____ _____ wt %

ASH (SHALE)

67.6
76.7 _____ _____ wt %

MOISTURE

0.28 _____ _____ wt %

CARBON

17.2
16.9 ✓ _____ _____ wt %

HYDROGEN

1.81
1.73 ✓ _____ _____ wt %

BENZENE EXTRACTABLES

_____ _____ wt %

SHALE RICHNESS DISTRIBUTION
(See attached graph)

SCREEN ANALYSIS
(See back of this sheet)

All results are "as received" unless noted. "Moisture" designates the moisture content of the -48 mesh material used for "Ash", "Mineral CO₂", "Carbon", and "Hydrogen". The "FA Moisture" is for the sample used for the Fischer Assay.

COMMENTS

DATE COMPLETED MAY 3 1967

CHECKED BY PEO

LABORATORY ANALYSIS SHEET

ANVIL POINTS OIL SHALE RESEARCH CENTER

Date Sampled 4-29-67

Run No. C 1034 TRANS

Sample Time: RS 12:00; SS _____

FISCHER ASSAY

RAW SHALE SPENT SHALE

28.3 _____ Gal/Ton
0.901 _____ S.G., g/ml
10.7 _____ Oil, wt %
1.8 _____ Water, wt %
85.3 _____ Sp. Shale, wt %
2.2 _____ Gas & Loss, wt %
slight _____ COKING TENDENCY

RETORT SHALE MOISTURE

ET
 RAW SHALE FISCHER ASSAY MOISTURE

0.74 wt %

MINERAL CO₂

ET
 17.2 _____ wt %

ASH (SHALE)

ET
 67.7 _____ wt %

MOISTURE

ET
 0.32 _____ wt %

SHALE RICHNESS DISTRIBUTION
 (See attached graph)

CARBON

16.9 / 16.7 _____ wt %

SCREEN ANALYSIS
 (See back of this sheet)

HYDROGEN

1.81 _____ wt %

BENZENE EXTRACTABLES

_____ _____ wt %

All results are "as received" unless noted. "Moisture" designates the moisture content of the -48 mesh material used for "Ash", "Mineral CO₂", "Carbon", and "Hydrogen". The "FA Moisture" is for the sample used for the Fischer Assay.

COMMENTS _____

DATE COMPLETED MAY 3 1967

CHECKED BY REP

LABORATORY ANALYSIS SHEET

ANVIL POINTS OIL SHALE RESEARCH CENTER

Date Sampled 4-28-67

Run No. C1034 START UP

LIQUID PRODUCTS

	<u>D3 PUMPOUT</u>				<u>T3 PUMPOUT</u>	
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>1</u>	<u>2</u>
<input checked="" type="checkbox"/> WATER, wt %	<u>24.090</u>	_____	_____	_____	_____	_____
GRAVITY, °API	<u>19.8</u>	_____	_____	_____	_____	_____

OIL ASH, wt % _____

DISTILLATION (See attached sheet - OSRC-24)

VENT PURGE PRODUCT



OIL WT, g _____

WATER VOL, ml _____

GRAVITY OIL, °API _____

VENT GAS

MAJOR COMPONENTS

CO₂ _____ vol %
 O₂ _____ "
 N₂ _____ "
 CH₄ _____ "
 CO _____ "
 H₂ _____ "
 Ar _____ "
 Others _____ "

C₁ thru C₄, plus n-Pentane

CH₄ _____ vol %
 C₂H₄-C₂H₆ _____ "
 C₃H₈ _____ "
 C₃H₆ _____ "
 i C₄H₁₀ _____ "
 n C₄H₁₀ _____ "
 φC₃H₆ _____ "
 n C₅H₁₂ _____ "

CARBON, _____ lbs/MSCFDG

HYDROGEN, _____ lbs/MSCFDG

COMMENTS _____

DATE COMPLETED May 2 1967

CHECKED BY [Signature]

OSRC-12B

(Revised 5/3/66)

SCREEN ANALYSIS DATA SHEET (TY-LAB)

RUN NO. C1034 Start up SAMPLE NO. 1 DATE 4/29/67
 UNIT lot # 3 DESCRIPTION TYLAB
 APPROX. SHALE SIZE 1/2 to 1/4 SHAKING TIME 10 min ANALYSIS BY Strale
 TOTAL SAMPLE WT. GROSS 143.3 - TARE 44.7 = NET 98.6

62.1
14.9
47.2

62.1
31.7
49.5

SCREEN SIZE			WEIGHTS								
SCREENS REQD.	OPENING SIZE	MESH	GROSS LBS.	TARE LBS.	NET WT. RETAINED	SCREEN SIZE	D _i *	1/2 D _i	% RETAINED	CUM. % RETAINED	% PASSING
	4.25					4.25					
	3.00					3.00	(3.125)	(0.3200)			
	2.50		18.6	16.7	1.9	2.50	(2.625) 2.750	(0.3809) 0.3636			
	2.00		37.6	20.2	17.4	2.00	2.250	0.4444			
	1.50		55.7	23.7	32.3	1.50	1.750	0.5714			
	1.05		39.2	19.2	20.0	1.05	(1.087) 1.275	(0.9199) 0.7843			
	0.742		33.8	20.5	13.3	0.742	0.896	1.116			
	0.525		27.4	18.4	9.0	0.525	0.634	1.577			
	0.371		21.9	12.2	2.7	0.371	0.448	2.232			
	0.263	3	19.0	18.3	.7	0.263	0.317	3.154			
	0.185	4	19.6	19.4	.2	0.185	0.224	4.464			
	0.131	6	19.5	19.4	.1	0.131	0.158	6.329			
	0.093	8	20.6	20.6	0	0.093	0.112	8.928			
	0.065	10	19.2	19.2	0	0.065					
	PAN		21.9	21.0	.9	PAN					
TOTAL ON SCREENS AND PAN					98.6	LOSS					
LOSS (BY DIFFERENCE)					0	TOTAL					
TOTAL SAMPLE WEIGHT					98.6						

* NUMBERS IN PARENTHESES SHOULD BE USED WHEN THESE SCREEN SIZES REPRESENT THE TOP OF THE SHALE SIZE RANGE.

REMARKS: _____

$\sum_{+8m}^m D_i$	$\sum_{+8m}^m X_i$
$1/\sum_{+8m}^m D_i$	$\sum_{+8m}^m X_i / D_i$
D _a	$\sum_{+8m}^m X_i D_i$
D _v	

SCREEN ANALYSIS DATA SHEET (TY-LAB)

RUN NO. C-1134-SL-70 SAMPLE NO. _____ DATE 4-22-77
 UNIT 11/2 DESCRIPTION 17/21
 APPROX. SHALE SIZE 1/2 SHAKING TIME 10 min ANALYSIS BY S. J. P.
 TOTAL SAMPLE WT. GROSS 110.5 - TARE 35.7 = NET 74.8

SCREEN SIZE			WEIGHTS								
SCREENS REQD.	OPENING SIZE	MESH	GROSS LBS.	TARE LBS.	NET WT. RETAINED	SCREEN SIZE	D_i *	$1/D_i$	% RETAINED	CUM. % RETAINED	% PASSING
	4.25					4.25					
	3.00					3.00	(3.125)	(0.3200)			
	2.50		17.3	16.7	.6	2.50	(2.625) 2.750	(0.3809) 0.3636	0.80		99.19
	2.00		37.8	20.2	17.6	2.00	2.250	0.4444	23.53		75.66
	1.50		45.7	23.4	22.3	1.50	1.750	0.5714	29.81		45.85
	1.05		35.7	19.1	16.6	1.05	(1.087) 1.275	(0.9199) 0.7843	22.19		23.66
	0.742		28.4	20.5	7.9	0.742	0.896	1.116	10.56		13.10
	0.525		24.8	18.5	6.3	0.525	0.634	1.577	8.42		4.68
	0.371		21.1	19.2	1.9	0.371	0.448	2.232	2.54		2.14
	0.263	3	18.8	18.3	.5	0.263	0.317	3.154	0.67		1.47
	0.185	4	19.0	19.1	.1	0.185	0.224	4.464	0.13		1.34
	0.131	6	19.5	19.3	.2	0.131	0.158	6.329	0.27		1.07
	0.093	8	20.7	20.6	.1	0.093	0.112	8.928	0.13	99.05	0.94
	0.065	10	19.3	19.3	.0	0.065			0.00		0.94
	PAN		21.6	19.9	.7	PAN			0.94		0.00
TOTAL ON SCREENS AND PAN					74.8	LOSS			99.99	-	-
LOSS (BY DIFFERENCE)					0	TOTAL				-	-
TOTAL SAMPLE WEIGHT					74.8						

81.0
4.6

* NUMBERS IN PARENTHESES SHOULD BE USED WHEN THESE SCREEN SIZES REPRESENT THE TOP OF THE SHALE SIZE RANGE.

REMARKS: _____

$\sum_{+8m}^m D_i$	1.51739	$\sum_{+8m}^m X_i$	
$1/\sum_{+8m}^m D_i$	0.81480	$\sum_{+8m}^m X_i / D_i$	
D_a	1.21563	$\sum_{+8m}^m X_i D_i$	
D_v	1.53194		