



Montana Renewables, LLC

1807 3rd St NW. Great Falls, Mt. 59404

PHONE: (406) 761-4100 / FAX: (406) 761-0174

SPK HEFA Certificate of Analysis

DATE: 4/11/2024
TANK NO: TK-306
BATCH NO: SPK HEFA - 04/11/2024
BATCH VOLUME (GALLONS): 311762
PRODUCT: SPK HEFA

TESTS: D7566 Annex 2, Table A2.1	UNIT:	RESULTS:	SPECIFICATIONS:	METHODS:
Composition				
TOTAL ACID, MAX	mgKOH/g	0.002	0.015 MAX	D3242
Volatility				
Physical Distillation				
10% RECOVERY POINT	DEG. C	174	205 MAX	D86
50% RECOVERY POINT	DEG. C	212	REPORT	D86
90% RECOVERY POINT	DEG. C	271	REPORT	D86
END BOILING POINT	DEG. C	286	300 MAX	D86
T90-T10,	DEG. C	97	22 MIN	D86
RESIDUE, MAX	%	1.2	1.5 MAX	D86
LOSS, MAX	%	0.5	1.5 MAX	D86
Simulated Distillation				
10% RECOVERED TEMP (T10)	DEG. C	152	REPORT	D2887
20% RECOVERED TEMP (T20)	DEG. C	168	REPORT	D2887
50% RECOVERED TEMP (T50)	DEG. C	211	REPORT	D2887
80% RECOVERED TEMP (T80)	DEG. C	272	REPORT	D2887
90% RECOVERED TEMP (T90)	DEG. C	287	REPORT	D2887
FINAL BOILING POINT	DEG. C	310	REPORT	D2887
FLASH POINT	DEG. C	41.8	38 MIN	D56
DENSITY @ 15 C	kg/m3	759	730 MIN - 772 MAX	D4052
FREEZING POINT	DEG. C	-40.3	-40 MAX	D5972
EXISTENT GUM	mg/100 ml	0	7 MAX	D381
FAME	mg/kg	<4.5	<5 MAX	IP 585
Thermal Stability				
TEMPERATURE		325	325 MIN	D3241
FILTER PRESSURE DROP		0.0	25 MAX	D3241
Tube Rating				
(1) Annex A1 VTR	VTR Color Code	1	LESS THAN 3	D3241
Additives				
ANTIOXIDANTS	mg/L	20	17 MIN - 24 MAX	

TESTS: D7566 Annex 2, Table A2.2
Hydrocarbon Composition*

CYCLOPARAFFINS	MASS %	demonstrated	15.0 MAX	D2425
AROMATICS	MASS %	demonstrated	0.5 MAX	D2425
PARAFFINS	MASS %	demonstrated	REPORT	D2425
CARBON AND HYDROGEN	MASS %	demonstrated	99.5 MIN	D5291

Non-hydrocarbon Composition

NITROGEN	mg/kg	demonstrated	2 MAX	D4629
WATER	mg/kg	demonstrated	75 MAX	D6304
SULFUR	mg/kg	demonstrated	15 MAX	D5453

Metals*

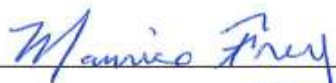
Al	mg/kg	demonstrated	0.1 MAX	D7111
Ca	mg/kg	demonstrated	0.1 MAX	D7111
Co	mg/kg	demonstrated	0.1 MAX	D7111
Cr	mg/kg	demonstrated	0.1 MAX	D7111
Cu	mg/kg	demonstrated	0.1 MAX	D7111
Fe	mg/kg	demonstrated	0.1 MAX	D7111
K	mg/kg	demonstrated	0.1 MAX	D7111
Mg	mg/kg	demonstrated	0.1 MAX	D7111
Mn	mg/kg	demonstrated	0.1 MAX	D7111
Mo	mg/kg	demonstrated	0.1 MAX	D7111
Na	mg/kg	demonstrated	0.1 MAX	D7111
Ni	mg/kg	demonstrated	0.1 MAX	D7111
P	mg/kg	demonstrated	0.1 MAX	D7111
Pb	mg/kg	demonstrated	0.1 MAX	D7111
Pd	mg/kg	demonstrated	0.1 MAX	D7111
Pt	mg/kg	demonstrated	0.1 MAX	D7111
Sn	mg/kg	demonstrated	0.1 MAX	D7111
Sr	mg/kg	demonstrated	0.1 MAX	D7111
Ti	mg/kg	demonstrated	0.1 MAX	D7111
V	mg/kg	demonstrated	0.1 MAX	D7111
Zn	mg/kg	demonstrated	0.1 MAX	D7111

HALOGENS*	mg/kg	demonstrated	1 MAX	D7359
-----------	-------	--------------	-------	-------

This Certificate of Analysis confirms that all tests were conducted in accordance with and the fuel tested meets the specifications of ASTM D7566-24b Annex 2, Table A2.1. According to D7566-24b A2.6 it is not necessary to analyze each batch of HEFA SPK for compliance with Table A2.2 once it is demonstrated that the process scheme is adequately controlled to support the expectation that these requirements are always met which MRL consistency has prior to this COQ.

* indicates tests that were performed by outsourced labs

Approved by company representative:

MRL Signature: 
Maurice Frey 