

Phoenix Chemical Laboratory, Inc.

FUEL AND LUBRICANT TECHNOLOGISTS

CHICAGO, IL 60647-3497

TELEPHONE 773-

FAX NO. 773-

August 10, 2015

RECEIVED FROM: National Transportation Board
Central Region Office
4760 Oakland Street, Ste. 500
Denver, CO 80239
Attn: Courtney Leidler

SAMPLE OF Fuel

LABORATORY NO. 15 7 21 8-9

MARKED CEN15LA231

Lab. No.

15 7 21 8

15 7 21 9

Marked

Hose Sample

Tank Sample

Appearance

Pale green clear and bright
with no observed water or
particulate. Non-viscous
with mild odor.

Pale blue clear with no
observed water or particulate
Non-viscous with mild odor.

Karl Fischer Water, ppm

87

91

Specific Gravity @ 60/60°F

0.7096

0.7064

Existent Gum, mg/100mL

Unwashed

222.0

127.0

HeptaneWashed

<0.2

<0.2

Vapor Pressure by Isoteniscope, torr

Temperature, °F

32

21

18

68

64

47

100

110

89

150

300

260

200

600

600

208

760

-

215

-

760

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Infrared Analysis

The infrared spectra of the various fractions of the samples were run. The spectra are attached and are made part of this report by reference.

Lab. No. 15 7 21 8

- 1) As received – Between potassium bromide plates.
- 2) As received – Attenuated total internal reflectance (Diamond).
- 3) Unwashed gum – Between potassium bromide plates.
- 4) Unwashed gum – Attenuated total internal reflectance (Diamond).

Lab. No. 15 7 21 9

- 1) As received – Between potassium bromide plates.
- 2) As received – Attenuated total internal reflectance (Diamond).
- 3) Unwashed gum – Between potassium bromide plates.
- 4) Unwashed gum – Attenuated total internal reflectance (Diamond).

Comparative Spectra

- 1) Lab. No. 15 7 21 8 vs Lab. No. 15 7 21 9 as received (Diamond).
- 2) Lab. No. 15 7 21 8 gum vs Microcheck 11 (Diamond).
- 3) Lab. No. 15 7 21 8 gum vs bis-2-ethylhexyl phthalate (Diamond).
- 4) Lab. No. 15 7 21 9 vs Stabilisator LSA (Diamond).

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Comments:

The following comments are based upon the data which have been obtained:

- 1) The samples, as received, have distinctly different visual appearances. Their infrared spectra are almost identical.
- 2) The water contents, specific gravities and vapor pressures of the samples are substantially identical.
- 3) The samples have unusually high unwashed gum contents. That of Lab. No 15 7 21 8 is greater than that of Lab. No. 105 7 21 9.
- 4) The unwashed gum content of Lab. No. 15 7 21 8 is similar to the additive identified as Microcheck II which itself is substantially identical to bis-(2-ethylhexyl) phthalate. The latter may be related to the seal of the container in which the sample was received.
- 5) The unwashed gum content of Lab. No. 157 21 9 is substantially the same as the additive identified as stabilisator LSA, but different from that of Lab. No. 15 7 21 8.

Arthur A. Krawetz