

SOUTHWEST RESEARCH INSTITUTE®

6220 CULEBRA ROAD 78238-5166 • P.O. DRAWER 28510 78228-0510 • SAN ANTONIO, TEXAS, USA • (210) 684-5111 • WWW.SWRI.ORG

October 25, 2013

George Fennell
Steel Shield Technologies
3351 Industrial Blvd
Bethel Park, PA 15102-2543
Phone: 1-800-390-1535
Email: gcfennell@steelshieldtech.com

Re: Fuel Analysis Results
Purchase Order# 114
SwRI WO# 69250

Dear Mr. Fennell:

Analyses have been completed on your samples in accordance with the tests requested. Three samples were received in good condition on October 8, 2013 in good condition. The samples were received in various containers. Testing took place by October 28, 2013. Test results and sample identifications are shown in the table attached.

Analyses were performed according to the listed ASTM test procedures with no modifications or deviations. Precision should be consistent with those stated in the ASTM test procedures. Sample aliquots were taken in accordance with the various ASTM test procedures. The analyses above pertain only to the sample received by Southwest Research Institute and represent only that sampling lot. This report shall not be reproduced except in full without the express written permission of Southwest Research Institute.

If there are any questions concerning these analyses, or if you need any additional testing on the samples, please contact me at (210) 522-2071. We appreciate the opportunity to be of service to your firm.

Sincerely,



Robert R. Legg
Fuels Laboratory Manager
Fuels & Lubricants Research Department
Office of Automotive Engineering

OMRRDJY 69250.docx
Page 1 of 3



Benefiting government, industry and the public through innovative science and technology

Petroleum Products Research Department
Test Summary Report
Steel Shield Technologies
Purchase Order # 114
October 25, 2013

| SwRI | Sample ID: | | 20003 | 20004 |
|-------|---|--------|--------------|--------------------|
| Code: | Sample Identification: | | Litho Shield | Yamamoto EP grease |
| D1264 | Water Washout of Grease | | | |
| | Avg. Grease Washed Out | Wt % | 1.32 | 0.66 |
| | Test Temp. | °C | 79 | 79 |
| | Dry Temp. | °C | 77 | 77 |
| D1742 | Oil Separation from Lubricating Grease | mass % | 2.04 | * Note |
| D2265 | Dropping Point | °C | 258 | 307 |
| | Oven Temp. | °C | 288 | 316 |
| D2266 | Wear Characteristics (Four-Ball Method) | | | |
| | Scar Diameter | kgf | 0.75 | 0.47 |
| D2596 | Four-Ball Extreme Pressure Properties | | | |
| | Corrected Load | kgf | 851.1 | 501.68 |
| | Load-Wear Index | kgf | 92.27 | 66.73 |
| | Weld Point | kgf | 800 | 315 |
| | LNSL | kgf | 80 | 63 |

* No oil separation occurred for grease sample "Yamamoto EP grease", therefore, sample is considered "outside the scope of the method".

Note 1: The information contained in this document is legally privileged and/or proprietary business information intended only for the use of the individual or the entity named above. If the reader of this document is not the intended recipient, you are hereby notified that any dissemination, distribution, or copy of this document is strictly prohibited. If you have received this document in error, please immediately notify us by telephone at 210/522-2964 and return the original document to the sender at the return address via the United States Postal Service.

Note 2: Institute shall not publish or make known to others the subject matter or results of the Project or any information obtained in connection therewith which is proprietary and confidential to Client without Client's written approval. No advertising or publicity containing any reference to Institute or any of its employees, either directly or by implication, shall be made use of by Client or on Client's behalf without Institute's written approval. In the event Client distributes any report issued by Institute on this Project outside its own organization, such report shall be used in its entirety, unless Institute approves a summary or abridgement for distribution.



Petroleum Products Research Department
Test Summary Report
Steel Shield Technologies
Purchase Order # 114
October 25, 2013

| | | | |
|-------|---|--------|-------------------|
| SwRI | Sample ID: | | 20005 |
| Code: | Sample Identification: | | Atlas Chisel lube |
| D1264 | Water Washout of Grease | | |
| | Avg. Grease Washed Out | Wt % | 1.11 |
| | Test Temp. | °C | 79 |
| | Dry Temp. | °C | 77 |
| D1742 | Oil Separation from Lubricating Grease | mass % | ** Note |
| D2265 | Dropping Point | °C | 302 |
| | Oven Temp. | °C | 316 |
| D2266 | Wear Characteristics (Four-Ball Method) | | |
| | Scar Diameter | kgf | 0.71 |
| D2596 | Four-Ball Extreme Pressure Properties | | |
| | Corrected Load | kgf | 302.79 |
| | Load-Wear Index | kgf | 41.23 |
| | Weld Point | kgf | 315 |
| | LNSL | kgf | 50 |

** No oil separation occurred for grease sample "Atlas Chisel Lube", therefore, sample is considered "outside the scope of the method".

Note 1: The information contained in this document is legally privileged and/or proprietary business information intended only for the use of the individual or the entity named above. If the reader of this document is not the intended recipient, you are hereby notified that any dissemination, distribution, or copy of this document is strictly prohibited. If you have received this document in error, please immediately notify us by telephone at 210/522-2964 and return the original document to the sender at the return address via the United States Postal Service.

Note 2: Institute shall not publish or make known to others the subject matter or results of the Project or any information obtained in connection therewith which is proprietary and confidential to Client without Client's written approval. No advertising or publicity containing any reference to Institute or any of its employees, either directly or by implication, shall be made use of by Client or on Client's behalf without Institute's written approval. In the event Client distributes any report issued by Institute on this Project outside its own organization, such report shall be used in its entirety, unless Institute approves a summary or abridgement for distribution.

