# The Oil Report

Feb. 2003

"Oil the News That's Fit to Print!"


## Welcome to The Oil Report!

This is the first edition of The Oil Report, Blackstone Laboratories' new newsletter. We plan to publish this newsletter three times per year. The next edition will be published electronically.

If we have your e-mail address on file, you will receive the newsletter automatically. If we don't, please send it to us with your next sample! For those without e-mail, this will also be available on our website, at www.blackstone-labs.com. We hope you enjoy this newsletter!

## Spotlight on...

# Oil Brands

**by Jim Stark**

No matter who you are or what your oil analysis needs are, you have undoubtedly faced the question on everyone's mind these days: What brand of oil should I use?

Many people have very strong loyalties to certain brands of oil. They'll swear by their favorite brand and assure you that anything else is bound to ruin your engine. But we're here to dispel that myth. After nearly 20 years of testing oils from thousands of different engines and industrial machines, we have discovered a simple fact: it doesn't really matter what brand of oil you use.

But wait! Before you dismiss us as heretical, listen to what we do recommend. We always suggest using an oil grade recommended for your engine by the manufacturer and a brand that fits your budget. The grade of oil is much more important to performance than the brand of oil.

In fact, here's another little secret. The oil you can find at any mass retailer is actually name-brand oil, but with the store's label on it. Think about it. A retail store is not in the business of manufacturing oil. They buy their oil from the big oil companies and put their name on the bottle. The only difference between the "generic" brand and the name-brand oil is the name on the bottle and about 50 cents per quart.

We analyze oils from our personal use engines (right down to our lawn mowers) religiously. We tend to choose oils that do not contain additives that can get in the way of elements we want to see in the analysis. For instance, some light, multi-grade oils use compounds of copper and/or sodium as oil additives. The copper additive masks brass or bronze wear from the engine. Sodium additives can mask anti-freeze contamination.

If you want to see for yourself which oil is going to perform better in your engine, we recommend a test: run

Brand A in your engine for a set number of miles or hours and have a sample analyzed. Then run Brand B in your engine for the same amount of time and have that oil analyzed. You can compare the results for yourself, side by side, to determine which oil is best for you.

## Report of the Month

**What's wrong with this Mack engine? See the caption below for an explanation. Don't look right away -- take a good look at the report first.**

(To learn where the various elements might be coming from, click here.)

**Elements in Parts Per Million**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MI/HR ON OIL | 24,562 | UNIT/ LOCATION AVERAGES | 72,979 | 11,663 | 37,544 | 32,651 | UNIVERSAL AVERAGES |
| MI/HR ON UNIT | 314,117 | | 289,555 | 216,576 | 204,913 | 167,369 | |
| SAMPLE DATE | 04/09/02 | | 12/21/01 | 08/31/01 | 01/08/01 | 06/28/00 | |
| | | | | | | | |
| ALUMINUM | 6 | 2 | **5** | 4 | 5 | 3 | 3 |
| CHROMIUM | 6 | 1 | 2 | 2 | 1 | 1 | 2 |
| IRON | 206 | 51 | **119** | **84** | **100** | 48 | 54 |
| COPPER | 200 | 17 | 312 | 412 | 22 | 13 | 23 |
| LEAD | 90 | 11 | **27** | **96** | **81** | 5 | 13 |
| TIN | 9 | 1 | 5 | 10 | 2 | 2 | 2 |
| MOLYBDENUM | 48 | 10 | 82 | 6 | 7 | 55 | 19 |
| NICKEL | 1 | 0 | 0 | 01 | 0 | 0 | 1 |
| POTASSIUM | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| BORON | 49 | 19 | 24 | 85 | 32 | 26 | 63 |
| SILICON | 84 | 8 | 60 | 78 | 8 | 6 | 10 |
| SODIUM | 1509 | 7 | 333 | 1267 | 12 | 23 | 26 |
| CALCIUM | 3040 | 2522 | 2724 | 1142 | 2288 | 2377 | 1874 |
| MAGNESIUM | 185 | 214 | 271 | 456 | 206 | 206 | 444 |
| PHOSPHORUS | 1678 | 1021 | 1263 | 1979 | 1001 | 911 | 1045 |
| ZINC | 1194 | 1249 | 1398 | 1009 | 1216 | 1153 | 1235 |
| BARIUM | 1 | 0 | 0 | 1 | 0 | 0 | 1 |

**Properties**

| TEST | cST VISCOSITY @ 40 C | SUS VISCOSITY@ 100 C | cST VISCOSITY@ 100 C | SUS VISCOSITY @ 210 F | FLASHPOINT IN F | FUEL % | ANTI-FREEZE % | WATER % | INSOLUBLES % |
|---|---|---|---|---|---|---|---|---|---|
| VALUES SHOULD BE | | | | 68-77 | >410 | <2.0 | 0.0 | <0.05 | 0.7 |
| TESTED VALUES WERE | | | | 67.5 | 410 | <0.5 | 3.02 | 0.0 | 0.5 |

**Antifreeze is slowly killing this Mack E7 350. Note the increasing sodium level and the toll it's taking on the bearings (iron, copper, lead, and tin). If the owner does not repair this problem soon, he'll spin a bearing.**

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