Update your lubricant and fuel additive data file with this information on (1) Five Amoco Additives, (2) New multi-specification additive “packages”, (3) A summary of the Amoco Additive line.

AMOCO 198
Zinc Dithiophosphate

AMOCO 198 is a new zinc dithiophosphate for use as an oxidation, corrosion, and wear inhibitor for motor oils. Because of the proper selection of raw materials used in the manufacture of this additive, increased thermal stability has been achieved without sacrifice of other performance properties. It is therefore suitable for use in all motor oil applications but it is particularly recommended for applications in which thermal stability is required.

AMOCO 572
Gasoline Detergent

For the control of deposits in the carburetor throttle area, Amoco 572 Detergent offers unique advantages. In some cases carburetor deposits are increasing as a result of Positive Crankcase Ventilation devices. Rough idling and stalling problems are thus becoming more prevalent. AMOCO 572’s detergent capabilities serve to reduce and minimize these deposits. Such deposit control offers the opportunity of increased gasoline mileage and lower carburetor maintenance costs. AMOCO 572 is non-phosphorus, low in cost and effective at extremely low concentrations (6 pounds per thousand barrels).

AMOCO 572 is not surface active nor is it extracted by water in the fuel system. It is a carburetor detergent that is readily soluble in hydrocarbons and compatible with a wide range of other gasoline additives. It handles easily at temperatures as low as —20°F.

AMOCO 540—a pour point depressant and cold flow improver for distillate fuels

While Amoco 540 will improve the ASTM D-97 pour point of distillate fuels to the desired level, it will also do much more. It improves the pumptability of distillates at low temperatures. (There often is poor correlation between pour point and actual fuel handling characteristics in cold weather.)

Wax crystals, in the shape of long slender needles, precipitate from chilled heating oils which do not contain a pour point depressant. These wax needles interlace and stop oil flow completely at low temperatures, even through relatively coarse screens. AMOCO 540 introduces a flaw in the growing crystal so that the wax precipitates in micro-crystalline form with little or no needle structure. AMOCO 540 does not stabilize water-oil mixtures and thus add ice crystals as an additional cold flow problem.

AMOCO 540 has been extensively tested in use in some of the coldest climates to be experienced in the United States. In addition to performing successfully in these cold-climate tests, it offers distillate fuel marketers other advantages. It has no adverse effect upon oxidation stability, rusting or combustion characteristics. In use in railway diesel fuel it shows no engine deposit tendencies.

For prevention of gum formation in gasolines—AMOCO 535
Antioxidant

By reacting with free radicals, AMOCO 535 effectively retards chain reactions and protects gasoline from oxidation and gum formation. Additionally, AMOCO 535 Antioxidant (1) stabilizes tetraethyl lead in gasoline, (2) prevents the degradation of the TEL and (3) prevents the precipitation of the TEL from the gasoline while in storage. AMOCO 535 can also be used to inhibit or sweeten gasoline. It is described chemically as N,N'-Diisopropyl-p-phenylenediamine.

AMOCO 600
VI Improver for motor oils—superior in performance, low in cost

AMOCO 600 is a linear isobutylene polymer, viscosity index improver that provides motor oils with these important advantages:
1. Easier engine starting
2. Increased gasoline mileage
3. Less octane-requirement increase
4. Greater shear stability
5. Better oil mileage

In its action as a viscosity index improver, AMOCO 600 permits a greater viscosity loss under shear which allows for better lubrication in areas of most intense stress (such as between piston and cylinder walls). This is explained by the action of the VI improver molecules. Under low shear conditions, the VI improver molecules form a network which restricts the flow of the oil molecules.

In shear conditions, the VI improver molecules are formed into parallel positions permitting the oil molecules to flow more rapidly. When the oil passes through the shear condition, the VI improver molecules quickly return to their normal state, forming a network which reduces the oil’s flow.

The greater temporary viscosity loss afforded with AMOCO 600 re-
results in easier starting because it permits higher engine cranking speeds. While exhibiting a greater temporary viscosity loss, Amoco 600 helps oils hold down any permanent loss in viscosity.

**AMOCO'S Multi-specification Additive packages**

Certain motor oils now being marketed by leading oil companies are justly classified as "multi-specification" oils. The construction of these types of oils is largely dependent upon the use of multi-specification additive packages. The specifications which oil marketers are considering as multiple targets for today's and tomorrow's oils are:

1. Service MS (Most Severe) as defined by the revised Sequence tests appearing in the forthcoming ASTM 315B (including the June, 1965, version of Sequences IIA and IIIA).

2. MIL-L-2104A or MIL-L-2104A S-1 or MIL-L-2104B.

3. The ultimate in tests, the "Aunt Minnie" field test—short trips (under 4 miles) and slow speeds (under 40 mph) under winter driving conditions in the Northern sector of the U.S. With the proper selection of additives you can compound an oil that will run 1-2 months in the "Aunt Minnie" test or one that will run 5 or more months before the first speck of rust on a valve lifter signifies the depletion of rust protection.


5. Automakers' Factory Fill Specifications.

In studying multi-specification possibilities it is not suggested that one oil should meet all of the aforementioned specifications. It is suggested, however, that it has now become feasible to economically produce, with the use of Amoco's new multi-specification additives, such oils as "MIL-B-MS" or "MS-S-1." As an added inducement these same oils with slight formulation changes will pass the Automakers' Service Fill Specifications.

As to details—your base oils treated with Amoco's new multi-specification additive packages will control engine rust and corrosive wear; will minimize sludge even in the latest engine tests which incorporate Positive Crankcase Ventilation valves; will extend the normal operating life of the various valves in the various PCV systems; and will maintain new car performance throughout the increased crankcase oil life brought about by today's extended oil-drain intervals.

As to the base additives used in building Amoco's multi-specification additive packages, these include a new ashless detergent-dispersant, combined with one or more of Amoco's new metallic or non-metallic rust inhibitors plus a zinc dithiophosphate oxidation and wear inhibitor.

<table>
<thead>
<tr>
<th>Check list of other AMOCO Additives:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CLASS OF ADDITIVE</strong></td>
</tr>
<tr>
<td>Inhibitor</td>
</tr>
<tr>
<td>Detergent</td>
</tr>
<tr>
<td>Inhibitor</td>
</tr>
<tr>
<td>Detergent Inhibitor</td>
</tr>
<tr>
<td>Metal Deactivators</td>
</tr>
<tr>
<td>Gasoline Antioxidants</td>
</tr>
<tr>
<td>Two-cycle engine oil additive</td>
</tr>
</tbody>
</table>

---

Please send me Information Sample
AMOCO 48 □ □
AMOCO 121 □ □
AMOCO 150 □ □
AMOCO 193 □ □
AMOCO 198 □ □
AMOCO 200 Series □ □
AMOCO 520 Series □ □
AMOCO 530 Series □ □
AMOCO 540 □ □
AMOCO 572 □ □
AMOCO 600 □ □
AMOCO 661 □ □

AMOCO CHEMICALS CORPORATION
Department 7780-1
130 East Randolph Drive
Chicago, Illinois 60601

NAME __________________________
POSITION _______________________
COMPANY ______________________ 
ADDRESS _______________________