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## ***Chapter 8***

### ***Used Oil Recommendations***

Use of Used Oil for the State's Lubrication Oil Needs

Use of This State's Used Oil by Re-refiners or as a Lube Stock

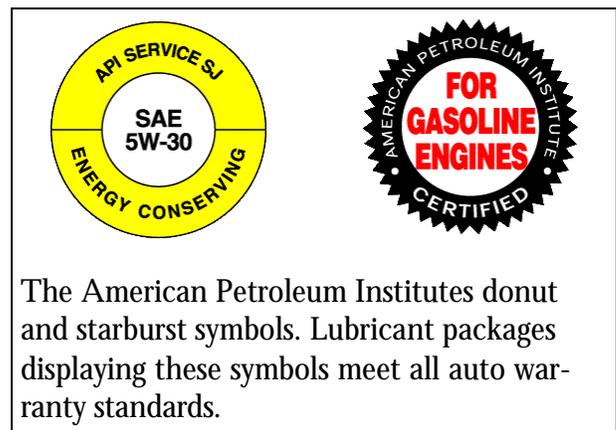


The Arizona Recycling Program is required by A.R.S. §49-832.C. to include recommendations on the feasibility of maximizing the use of re-refined oil for state lubrication needs (ADEQ obtained this information from *Re-refined Oil*, published by the Buy Recycled Business Alliance, 1996), and the state's use of used oil as the oil feedstock of re-refiners.

### Use of Used Oil for the State's Lubrication Oil Needs

As was first reported in the 1996 Arizona Recycling Program annual report, automobile warranties do not prohibit the use of re-refined (recycled) oil for engine lubrication. Auto manufacturers and the oil industry do not distinguish between re-refined oil and virgin oil. Many brands of lubricating oil are sold in containers that indicate a portion of the oil is re-refined by displaying the recycled content symbol. However, as there is no recognized distinction between re-refined and virgin oil, re-refined oil may be purchased in a container that does not identify its contents as re-refined. Therefore, consumers may be purchasing recycled content oil without realizing it.

Guidelines set by the American Automobile Manufacturers Association, the American Petroleum Institute, the Society of Automobile Engineers, the American Society of Testing Materials, and the Chemical Manufacturers Association do not distinguish between re-refined oils and virgin oils. In addition, all three major United States automobile manufacturers (Ford, General Motors and Chrysler) recognize that re-refined oils meet the performance criteria in their warranties. Engine oils must be licensed indicating that they meet the current American Petroleum Institute (API) designations to guarantee performance and a valid warranty. Consumers must look for the API donut or the starburst symbol on the oil container to be sure the oil they are purchasing meets warranty standards.



The American Petroleum Institutes donut and starburst symbols. Lubricant packages displaying these symbols meet all auto warranty standards.

Though foreign auto makers, as a group, have not officially announced they recognize the use of re-refined oil for lubricating needs in its products, foreign manufacturers do not prohibit their use. In fact, Mercedes Benz installs re-refined oil in every new car manufactured in Germany and South Carolina. The cost of re-refined oil has become competitive with virgin oil. In 1994, the United States Postal Service used re-refined oil in 105,600 vehicles and saved up to five cents per gallon. Re-refined oil now exists that: 1) meets the warranty requirements of automobile manufacturers, and 2) has become competitive in price with virgin oils. With this in mind, the Arizona Recycling Program encourages the continued use of the API licensed re-refined oil as a lubricant in the state's fleet vehicles and its use by the public at large.

### Use of This State's Used Oil by Re-refiners or as a Lube Stock

Quarterly and annual reports submitted to ADEQ's Solid Waste Section from the used oil industry in Arizona indicate that 16,582,741 gallons of used oil were collected during the 1999 calendar year. This is 13 percent less than the year before. This

decrease may be the result of refining the reporting system for the used oil industry instituted by the state. This may result in less double counting of used oil. Table II.5 gives the breakdown of the uses of the recovered used oil.

The industry re-used 12,343,245 gallons of used oil in Arizona. The vast majority of this, 12,206,078 gallons, was burned in asphalt and concrete production and energy recovery. The remaining 137,167 gallons were recycled as form oil, which is used to lubricate the inside surface of forms and molds, and to shape concrete structures in the construction industry. Therefore, 0.8 percent of the oil collected in Arizona was recycled within the state. The Arizona used oil industry exported 4,239,496 gallons of used oil to California, Indiana, Kansas, Oklahoma, Nevada, and Texas. Burning, including the use of the oil as bunker fuel, consumed 3,093,308 gallons, while 1,146,188 gallons were recycled as either lube stock or re-refined. A total of 1,283,355 gallons collected from sources in Arizona was recycled. This results in a recycling rate for used oil of 7.7 percent. The 7.7 percent rate for 1999 represents the second consecutive year over which the rate decreased significantly. For 1998 the rate was 10.2 percent and for 1997 it was 18.4 percent. Though the industry reported for the first time that used oil was exported to Kansas, Oklahoma, and Texas for recycling, the decrease in used oil exported to Indiana for recycling more than made up for it. No used oil was shipped to California for recycling as had been done in previous years; all the oil exported to that state was burned for energy as bunker fuel. The 7.7 percent used oil recycling rate is below the national average, which was 15 percent in 1995. In addition, 99.2 percent of the possible feed stock for re-refined used oil is not being utilized by recycling industries within the state. This represents a significant loss of revenue in the form of value added to the material in its re-refined state. The Arizona Recycling Program encourages the development of the oil re-refining industry within Arizona. This would supply jobs and revenue for the state, while helping to increase the used oil recycling rate.

**Table II.5. Uses of used oil collected within Arizona during the 1999 calendar year. Figures are reported in gallons.**

Use	Ariz.	Calif.	Ind.	Kan.	Okla.	Nev.	N.M.	TX	Total
Lube stock			413,517	108	553,541			162,428	1,129,594
Re-refiners			16,594						16,594
Form oil	137,167								137,167
<i>Recycled total</i>	<i>137,167</i>	<i>0</i>	<i>430,111</i>	<i>108</i>	<i>553,541</i>	<i>0</i>	<i>0</i>	<i>162,428</i>	<i>1,283,355</i>
Burned	12,206,078					3,000			13,606,077
Bunker fuel		970,714					1,396,999	722,595	1,693,309
<i>Diverted total</i>	<i>12,206,078</i>	<i>970,714</i>				<i>3,000</i>	<i>1,396,999</i>	<i>722,595</i>	<i>15,299,386</i>
<b>Total</b>	<b>12,343,245</b>	<b>970,714</b>	<b>430,111</b>	<b>108</b>	<b>553,541</b>	<b>3,000</b>	<b>1,396,999</b>	<b>885,023</b>	<b>16,582,741</b>