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Oil Analyzers INC.

Effects of Fuel Dilution

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Fuel dilution occurs in gasoline or diesel engines when fuel enters the oil sump and mixes with motor oil. It can be caused by mechanical issues, such as leaking or dirty fuel injectors, or by the way the vehicle is driven, such as making predominantly short trips (especially in cold weather).

Leaking or dirty injectors often cause liquid fuel to reach the cylinder walls. Not only does the fuel eventually end up in the motor oil, but there is potential for accelerated upper-cylinder-wall wear since the lubricating film of oil is being washed away. If that is the case, wear metals such as Iron and possibly Chromium will be elevated. Leaking injectors can be checked by a mechanic with the proper equipment, and the problem can be solved by replacing the faulty injector (s). Dirty injectors often only require the use of a fuel-system cleaning product to resolve the issue.

Fuel dilution can also be caused by making frequent short trips. A cold engine is given extra fuel by the fuel injection system so that it will run smoothly. As the engine warms up, less fuel is required for proper combustion. If an engine is only driven for short trips, the oil never gets up to operating temperature, so the fuel does not get the chance to evaporate and be removed from the engine by the crankcase ventilation system.

Fuel dilution thins motor oil. Eventually the oil becomes too thin to prevent metal-to-metal contact and its ability to protect the engine is compromised. Minor fuel dilution at low percentage levels is normal, but if your dilution is flagged as abnormal, finding and correcting the cause is critical to the longevity of your engine.