Relevant Facts about E10

Recently Germany introduced E10 – a mixture of 10% ethanol and 90% gasoline – at fuel stations across the country. According to media sources the sale of the new fuel has created confusion amongst drivers, mainly due to concerns over the compatibility of their vehicles with the blend. Concerns about E10 in Germany are ill-founded and should be clarified. German car manufacturers, like BMW, have made public statements supporting E10 and approving its use. UNICA's international experience with ethanol use programs strongly recommends a wide cross-media campaign to educate car salesmen, drivers, technicians, journalists and other relevant stakeholders to dispel misconceptions and incorrect information about E10 and to highlight its benefits. A concise presentation of relevant facts about E10 that could be used in such a campaign is presented as it follows:

E10 is a well known motor vehicle fuel that has been efficiently used in several countries. Extensive experience shows that the blend can be consumed safely and efficiently by existing vehicles. The USA, Canada, France, Sweden Australia, New Zealand, China, India, Thailand, Philippines, Colombia, Venezuela, Malawi and Jamaica, among others, have already evaluated E10 and approved its use either as a mandated fuel or as an optional alternative.

E10 does not require engine recalibrations or vehicle modifications and because the parts and materials that have been used for decades by the motor industry are normally E10 tolerant, routine maintenance requirements, such as oil-change intervals, and engine lifetime are not affected. Corrosion problems are easily avoided with the adoption of proven fuel ethanol specifications and standard practices for fuel storage and handling.

Claims regarding that E10 damages engine parts or affects negatively engine operation and performance are in general incorrect and have been frequently used by ethanol opponents to impair its market penetration. Non compliance of fuel quality standards and existing vehicle problems that inevitably would result in engine or fuel supply system failure, even with the best pure gasoline brand, are incorrectly but commonly associated to E10. In fact the solvent property of ethanol keeps the fuel system and combustion chamber clean of deposits that otherwise might affect engine operation, increase fuel consumption and be the source of increased emissions;

Statements that E10 increases substantially fuel consumption are inconsistent too. Actually in most cases the marginal variation in fuel consumption that may occur, which is in the order of zero to 2% depending on vehicle characteristics, is unnoticed especially because other sources of fuel consumption increase such as air conditioning, tyre pressure, vehicle load, driving style, speed, altitude, traffic conditions etc. have a greater impact.

By far the largest experience with E10 comes from the USA where the blend has been used since the 1920s when Standard Oil began adding ethanol to gasoline to increase octane and

reduce engine knocking. From the late 1970s the consumption of E10 grew steadily, stimulated by mandates aiming at lowering oil dependence and reducing air pollution. Today E10 makes up almost all the fuel stock consumed by automobiles and light commercial vehicles in the USA. Recently the Environmental Protection Agency authorized the increase of ethanol content in the blend from 10% to 15% ethanol (E15).

Currently E10 is sold in the USA without voiding manufacturers warranty, and this has been the situation elsewhere. In fact E10 has been approved for use by every car manufacturer that sells vehicles in the United States and Canada. Below are presented a few samples of official statements made by car manufacturers contained in the car owner's manual:

BMW: *"Fuels containing up to 10% ethanol…..will not void applicable warranties with respect to defects or workmanship"*

MERCEDES BENZ: "*Unleaded gasoline containing oxygenates such as Ethanol, … can be used provided the ratio of any one of these oxygenates to gasoline does not exceed 10%…"*

CHRYSLER: *"Some fuel suppliers blend unleaded gasoline with oxygenates such as 10% ethanol, … . Oxygenates are required in some areas of the country during the winter months to reduce carbon monoxide emissions. Fuels blended with these oxygenates may be used in your vehicle".*

FORD: *"Ford approves the use of reformulated "cleaner-burning" gasolines to improve air quality. These gasolines may contain oxygenates up to 10% ethanol or … ."*

GENERAL MOTORS: *"…gasolines containing oxygenates, such as ethers and ethanol, and reformulated gasolines may be available in your area to contribute to clean air. General Motors recommends that you use these gasolines particularly if they comply with the specifications described earlier".*

HONDA: *"You may use gasoline containing up to 10% ethanol by volume"*

HYUNDAI: *"Gasohol (a mixture of 90% unleaded gasoline and 10% ethanol or grain alcohol) may be used in your Hyundai."*

JAGUAR*: "Oxygenated gasoline blended with ethanol (max. 10%), … may be used."*

MAZDA: *"The common gasoline blend that can be used with your vehicle is ethanol blended at no more than 10%"*

MITSUBISHI: *"A mixture of 10% ethanol and 90% unleaded gasoline may be used in your vehicle….."*

TOYOTA: *"If you use gasohol in your Toyota be sure…that it does not contain more than 10% ethanol"*

In Europe, ethanol was also used as an octane booster in the 1920s and 1930s when it was added to gasoline at levels ranging from 10% up to 33%. Germany, France and Britain were the leading users of fuel ethanol at that time. It must be emphasized that Germany, through the work of the *Deutsche Landwirtschaftliche Gesellschaft*, in Berlin, paved the way for the expanded use of ethanol in Europe during this period. But European experience with E10 is by no means limited to old experiences. Sweden has used E10 for various years without problems, France has been successfully using E10 for the past two years and Finland launched E10 at the beginning of 2011, just to mention a few cases. The Netherlands has also a positive experience with E15 formulated with hydrous ethanol which is more critical to materials and parts than anhydrous ethanol, the grade that is normally used in the preparation of fuel blends.

In 1931 the Brazilian government required E10 to be used by the public fleet in order to promote fuel grade ethanol. Since the mid 1970s the ethanol content in Brazilian gasoline increased significantly reaching the current level of 25%. However for this ethanol level some modifications may be necessary such as changes in the ignition and fuel injection systems and use of materials compatible with high ethanol levels. Nevertheless it must be said that a significant number of vintage vehicles, kept by collectors, do operate with the current blend without any major problems.

E10 is an environmentally-friendly fuel. As compared to pure gasoline and diesel E10 reduces various toxic atmospheric pollutants (carbon particles, sulfur oxides, polyaromatic hydrocarbons etc.). Also lowers greenhouse gases, mainly carbon dioxide (CO_2), what makes this blend a real alternative to reducing carbon emissions in the transport sector. If the ethanol in the blend is produced efficiently from sugarcane, as is the case in Brazil, the avoided CO_2 emission can be in the order of 8% to 9%.

After over thirty years of using ethanol-blended gasoline in large volumes on a nationwide scale in Brazil, it can be said that it makes sense to use E10.