Characteristic of lpg compositions in the fuel line during discharging process

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Research and development activities on Liquefied Petroleum Gas (LPG) vehicles have increased LPG engine performance to that of gasoline engines. LPG evaporation in the fuel system also has a potential cooling effect that can be taken advantage of. The results from previous studies, however, do not explain the level of fuel in the tank at the time of data collection. LPG is a mixture of several molecules which have different properties. This paper presents an investigation of LPG composition characteristics in the fuel line during the discharging process. Samples were taken periodically on the fuel line by special gas syringes. Afterwards, the samples were injected into the Gas Chromatography-Mass Spectrometry (GC-MS) device. This series of tests, which was conducted on lengthy LPG tanks, showed that the propane and butane 2-methyl molecules are unevenly dispersed during the discharging of the tank. However, this study found that a change in LPG composition during the discharging process does not have significant influence on the energy delivery and the potential cooling effect.