

have been conducted and the results showed a reduction of smoke intensity from 10% to 50%.<sup>2</sup>

Particulate Traps are believed to be a viable means of reducing vehicle emissions, but their effectiveness need to be further studied and trial scheme is being carried out.

#### *Alternative Fuels - Reformulated Diesel*

Diesel has the same advantages as gasoline, including excellent quality, a high energy density, easy storage, low production costs and a well-developed distribution network. For these and other reasons, diesel is a popular fuel in the transport sector. In Hong Kong, about 60% of the vehicle-kilometer-travelled was by diesel-fuelled vehicles in 1997 (see Figure 5.2b). Reformulated diesel has a different composition from traditional grades - desulphurized diesel is an example. Table 8.2b shows the reduction in pollutant emissions when compared with traditional diesel. Another advantage of reformulated diesel is that it can be introduced on a relatively large scale within a short period of time, as existing refineries and infrastructure can be used for its production.

**Table 8.2b**  
**Practical Example of Exhaust Emission Reduction<sup>3</sup>**

Emission	New Volvo Euro II bus + standard 0.05% sulphur diesel	New Volvo Euro II bus + 0.001% sulphur ULSD	Reduction
Hydrocarbons	1.05 gkm <sup>-1</sup>	0.66 gkm <sup>-1</sup>	37.1%
Carbon Monoxide	1.50 gkm <sup>-1</sup>	1.38 gkm <sup>-1</sup>	8%
Nitrogen oxides	15.44 gkm <sup>-1</sup>	14.47 gkm <sup>-1</sup>	6.3%
Particulates	0.38 gkm <sup>-1</sup>	0.22 gkm <sup>-1</sup>	42.1%

ULSD is considered a potentially viable and effective measure to manage vehicle emissions in Hong Kong and could be implemented within a short time frame.

#### **Alternative Fuels - Liquefied Petroleum Gas (LPG)**

LPG is an oil refinery by-product. It is a light, gaseous fraction that is liquefied by cooling. The advantage of LPG over petrol and diesel is the reduction of pollutant emissions particularly the emission of particulates (see Table 8.2c). Trials of LPG Taxis have been conducted in Hong Kong and the results are encouraging. The

<sup>2</sup> Source: *A Particulate Trap for Light Duty Diesel Vehicles* by C S Cheung, S L Chan, C W Chuen, H K Fung, K K Lo and W T Hung presented at "Diesel Vehicle Exhaust Treatment Technology and Motorcycle Emissions Workshop 1999" held on 11-12 January 1999.

<sup>3</sup> Source: Presentation of New World First Bus Services Limited at "Forum on the Future of Clean Bus Technologies" organised by *Clean The Air* held on 13 March 1999.