

TNO Science and Industry

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Subject
Additive CG-7 for saving fuel

SUMMARY OF RESEARCH

CleanerGlobe worked with TNO Science and Industry to study the influence of their diesel fuel additive CG-7 on the reduction of diesel fuel usage and the possible influence of the additive on soot emissions. Research was started at four different transport firms. The interim results of the current research are incorporated in test report TC-RAP-06-19394. The results from two of these transport firms are reported in this summary of research. An investigation was also conducted according to EN 590 as to the influence of CG-7 additive on the properties of diesel fuel.

Testing was / is carried out at the firms of Wesseling, located in Sassenheim, and St. van de Brink, located in Ermelo. These current researches are an ongoing process.

The results so far can be summarized as follows:

- Last year's fuel consumption figures for each truck were added up and then averaged out for each week. This allowed for the creation of a graphical display showing the average fleet fuel consumption for every week of the previous year. This was used as the baseline data.
- CleanerGlobe fuel additive CG-7 was then added to the bulk fuel storage tank in the proportion of 1 part CG-7 to 8,000 parts of diesel fuel.
- All of the trucks refuel at their own dedicated fuel pump.
- Each vehicle reported the number of kilometres travelled, re-fuelled litres, number of starts and stops and which routes were followed. These reports were sent by email for processing on a weekly basis. They were then displayed in a graphical form and overlaid on last year's figures.
- After adding CG-7 there was a delay before any fuel economy change became visible with respect to the yearly trend. After a change in fuel economy became visible monitoring continued for 10 more weeks. Then the use of CG-7 was discontinued for 10 weeks and the whole test was repeated, to be able to determine the recurrence impact.

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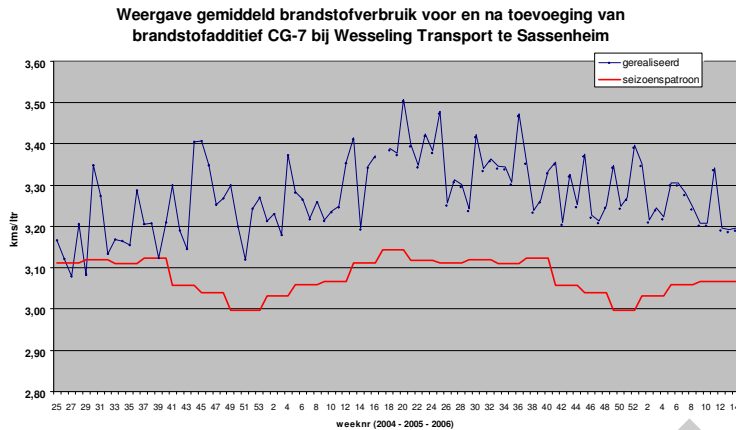
The Standard Conditions for Research Instructions given to TNO, as filed at the Registry of the District Court and the Chamber of Commerce in The Hague shall apply to all instructions given to TNO; the Standard Conditions will be sent on request.

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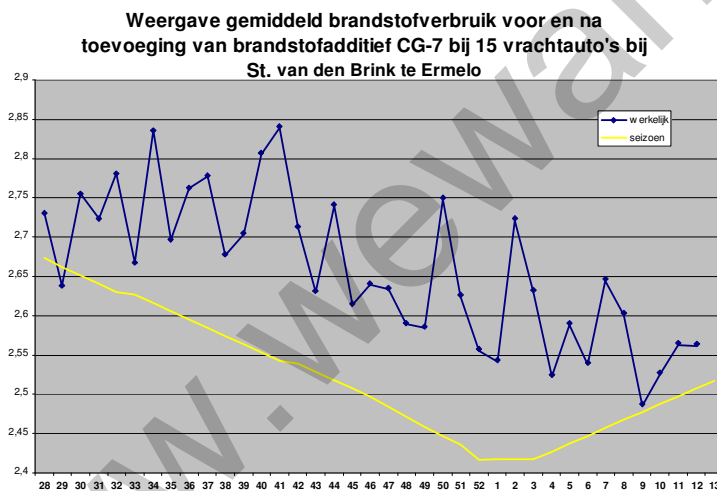
The figures below show a graphical display of the weekly fuel consumption figures before and after adding CG-7 fuel additive. These graphs are for both the firms Wesseling and St. van de Brink.



Graph 1: Average fuel consumption before and after addition of the CG-7 fuel additive at Wesseling Transport located in Sassenheim.

The **red** line represents the fuel consumption before addition of CG-7

The **blue** line represents the fuel consumption after addition of CG-7



Graph 2: Average fuel consumption before and after addition of the CG-7 fuel additive at St. van den Brink located in Ermelo.

The **Yellow** line represents the fuel consumption before addition of CG-7

The **blue** line represents the fuel consumption after addition of CG-7

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CONCLUSIONS

- CG-7 meets all the requirements of EN 590.
- After treating the bulk storage tank with the CG-7 fuel additive it takes 4 to 10 weeks before fuel economy benefits become visible.
- Usage of the CG-7 additive at the firm of Wesseling in Sassenheim resulted in a fuel saving of 8% averaged over one year.
- Usage of the CG-7 additive at the firm of St. van de Brink in Ermelo resulted in a fuel saving of 5.5% averaged on the test period.
- Usage of the CG-7 additive at the firm of St. van de Brink in Ermelo resulted in a reduction of soot emissions of 10 to 30%.

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