DIA Solvent Evaluation Workshop 2012

Perc vs hydrocarbon vs GreenEarth

Which is the best at removing some common stains on items regularly received by dry cleaners? Tests conducted recently in Sydney give us a clue.

A workshop on 7 October 2012, hosted by DIA, compared 3 solvents with live demonstrations of a variety of stains and embellishments on different types of textiles.

Nearly 50 delegates attended this session, reviewed the swatches prior to cleaning and after cleaning. The demonstrations, tests and test results are described below.

Summary

Each solvent has its strengths and weaknesses with the variety of garments that customers bring to their drycleaner today. No one solvent can do it all without some pre-spotting, good detergents, and flexible machine programs.

The test results found, for example, that perc, on one side of the spectrum, was more effective on shoe polish with no pre-spotting required. On the other side of the spectrum, the leathers, leather trims, beads, vinyls, and sequins were all more successful in GreenEarth than the other solvents. Hydrocarbon results were in the middle of the road with good cleaning, but less successful results on the embellishments and bright colours. In general, the alternative solvents were much more effective than previously thought by many of the workshop attendees and comparable in nearly all tested stain removal.

Wet cleaning, although not included in the testing, is an important adjunct to handle today's garments and was demonstrated during the workshop.

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The Plant

Lawrence Dry Cleaners, in Waterloo (Sydney), provided access to the plant for all testing. Three machines, using three different solvents, were available.

The hydrocarbon machine was using DF2000, a product of Exxon/Mobile.

The hydrocarbon and GreenEarth machines were both using Tonsil with spin disks, no stills, and Seitz detergent.

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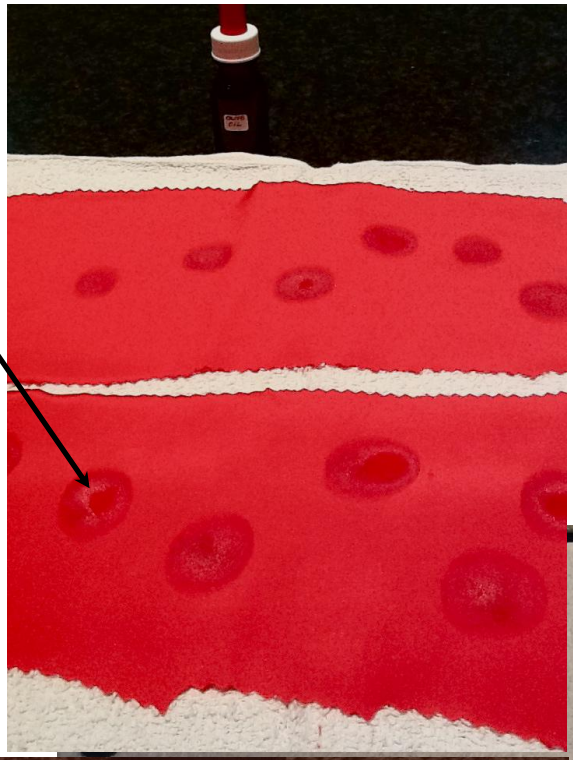
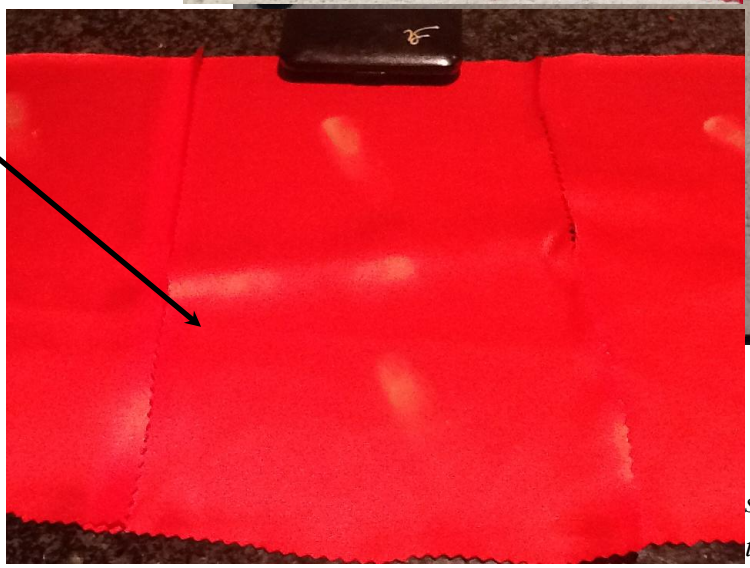
Complete stain removal in all three solvents, no pre-spotting

Aged* olive oil on red silk
Aged* engine oil, 10W40, on white cotton
Aged* medium baise foundation (cosmetic) on red silk

Comments: some pre-spotting that is being done today may not be necessary based on these results.





** Aged: The spot had been applied 3 days prior to testing.*

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Items not successfully cleaned in *any* solvent

- Aged* raw egg on white cotton
- Aged* tomato sauce on white cotton

Comments: these results came as no surprise to the attendees. In all cases, pre-spotting would have been necessary.
** Aged: The spot had been applied 3 days prior to testing.*

- Ground in soil on white cotton

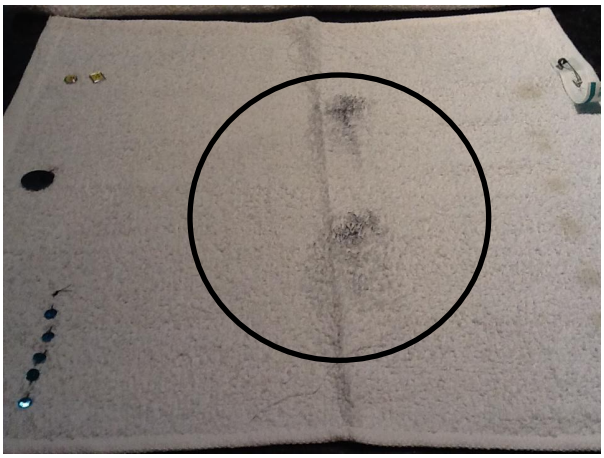
Comments: There was slight removal by all solvents, but none fully removed the soil. This item would always have been washed or wet cleaned under normal circumstances.

Perc was the most successful

- Black shoe polish on white cotton

Comments: The stain was fully removed in perc with no pre-spotting. The stains were lightened, but not fully removed in hydrocarbon or GreenEarth. Pre-spotting would be required.

- Aged* thick cream on black wool gaberdine swatch, no pre-spotting,



Comments: the cream was fully removed in perc. A quick blow from the steam gun, in post spotting, removed the remaining product from hydrocarbon and GreenEarth. No re-cleaning was require.

** Aged: The spot had been applied 3 days prior to testing.*

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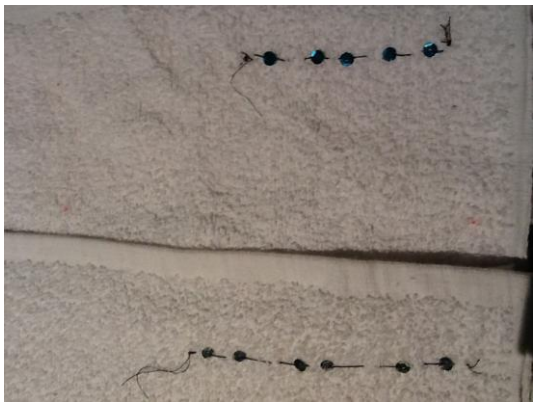
Items not successfully cleaned in perc

- Blue sequins
- Red plastic beads

Comments: The blue sequins experienced total colour loss in perc. The red plastic beads were originally refused by the plant's dry cleaner, but cleaned anyway. Although the beads survived in perc, there was a definite colour loss. There was a very minor loss of colour in hydrocarbon and no colour loss in GreenEarth.



- Vinyl cloth

Comments: The vinyl was destroyed in perc. It became separated from the cloth backing and formed a tight ball attached only by the pin. Hydrocarbon cleaning reflected some cracking and more wrinkling than GreenEarth.

Items Requiring Pre-Spotting

A black ink pen mark on a red silk swatch was pre-spotted with Kreussler spotting products by the delegates. A 50/50 leveler was added following the pre-spotting with 50% GreenEarth and 50% detergent. The swatch was cut into three pieces and one piece was put into each machine. In all cases, the swatch was saturated with pre-spotting product and the leveler. The ink was equally removed in all solvents. No

re-cleaning was required.

Cleaned in GreenEarth Only

Several garments, that had been cleaned in GreenEarth prior to the tests were included as demonstration only items. They included
- leather trim jacket
- painted shirt, and
- vinyl skirt

Comments: All three items were successfully cleaned with the leather trim on the jacket very soft, the vinyl skirt and its soft backing in tack and the painted shirt showing no sign of wear or cracking.

Other Observations by Delegates

Comments:

- *Perc had a very distinctive odour and the most amount of wrinkling.*
- *Hydrocarbon had a mild odour for some attendees and more wrinkling than GreenEarth.*
- *There was less odour, lint and wrinkling with GreenEarth results than the other two.*

Conclusions

Multisolvent machines, with improved machine programs, new detergent formulations and the use of Tonsil powder have been able to produce cleaning results that are often comparable to perc.

In the limited tests conducted, there was evidence where perc results excelled, such as the removal of the shoe polish. Similarly, there was evidence where GreenEarth results excelled with the leathers, leather trims, beads, vinyls, and sequins. Hydrocarbon results were also quite good, but less reliable on the embellishments and bright colours.

These tests did not consider operating costs such as the cost of the solvent, actual solvent mileage, energy and detergent costs for Tonsil/spin disk cleaning instead of distillation, and waste disposal costs.

Individual results are expected to vary based on the age of the stains and the nature of the textile.