

**EVALUATION OF PELLE CLEANER AND
PELLE CONDITIONER/PROTECTOR FOR
THEIR ABILITY TO:**

- **RESTORE SOILED UPHOLSTERY LEATHER**
- **IMPART RESISTANCE TO SOILING**

Geoff Holmes

RR188

April 2007

INTRODUCTION

The Pelle range of leather care products is well established, with a strong background of acceptance in the workplace.

This acceptance has been built up on the back of extensive research and development work involving LASRA and a track record of performance in the hands of consumers.

In more recent times, test methods have become available that are able to quantify and objectively define effects related to soiling of leathers and the removal of soiling.

In this investigation we employed these techniques to see to what degree the Pelle products could impart soiling resistance to upholstery leather as well as removing soiling and restoring a leather surface.

The test leather was a standard commercial upholstery leather manufactured in New Zealand. It was a beige pigmented leather, selected as a colour likely to show soiling.

The test apparatus used to apply the soiling was a Martindale tester. This apparatus rubs a cloth across the surface of a leather in a cyclical pattern, moving over the entire surface. With this apparatus we were able to apply soiling to the test leathers in a highly controlled manner.

The soiling itself was delivered from standard cloth impregnated with specified soilants. The cloth was obtained from a testing authority in Switzerland (EMPA).

MATERIALS AND METHODS

Pelle Conditioner/Protector Batch: 3142 received on 18/10/06 and Batch P/55 of the Pelle system Leather Cleaner, received on 02/03/2006 were used for this assessment of the effect of repeated cycles of treatment and soiling on standard upholstery leather.

Three pairs of sample upholstery leather test pieces were cut from a single area of hide into disc shapes (165mm diameter) large enough to fit into the bottom part of the Martindale Abrasion tester. One pair of samples was pre-treated with Conditioner/Protector as per instructions on the bottle and allowed to stand for one week in a controlled condition at 20°C and 65% RH. The other two pairs were also conditioned for one week but left untreated.

Soiling was introduced to the leather by application from a soiling cloth (EMPA cloth 104) located in the head unit of the Martindale tester, supported by a rubber pad to ensure a tight fit in the cup and fitted with a 12KPa weight (~900g).

Reference was made by comparing results with a leather disc given the same treatment but tested with a standard white cotton control cloth for the same number of cycles.



Martindale abrasion machine fitted with leather test pieces and control/soiling cloth materials in the head unit.

Observation of early test pieces showed that most of the soilant was transferred to leather within 800 cycles. A 3,500 cycle regime was chosen to ensure the soilant was ingrained into the leather and to introduce an element of abrasion into the test.

After each rub cycle, the pre-treated leather samples were cleaned with Leather Cleaner and re-treated with Pelle Conditioner/Protector before storing in a conditioned state for 1 week. One of the two remaining sets was cleaned with Leather Cleaner without Conditioner Protector and stored for 1 week. The third set of samples was used as control and just wiped with deionised water to remove soilant.

Three soiling/cleaning cycles were conducted for each of the three leathers, before rubfastness testing with water and perspiration solution.



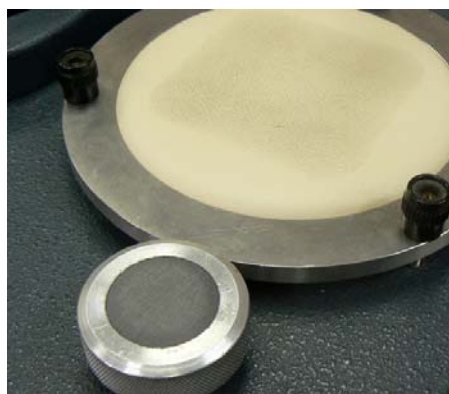
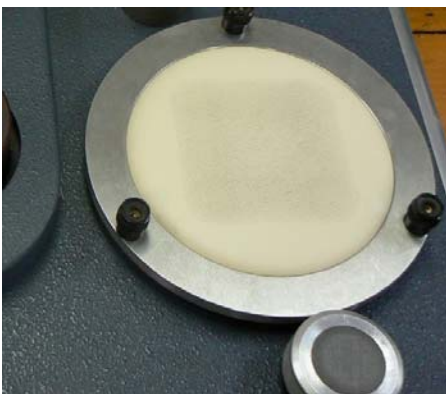
3,500 soiling cycles on untreated leather



3,500 soiling cycles on conditioned/protected leather

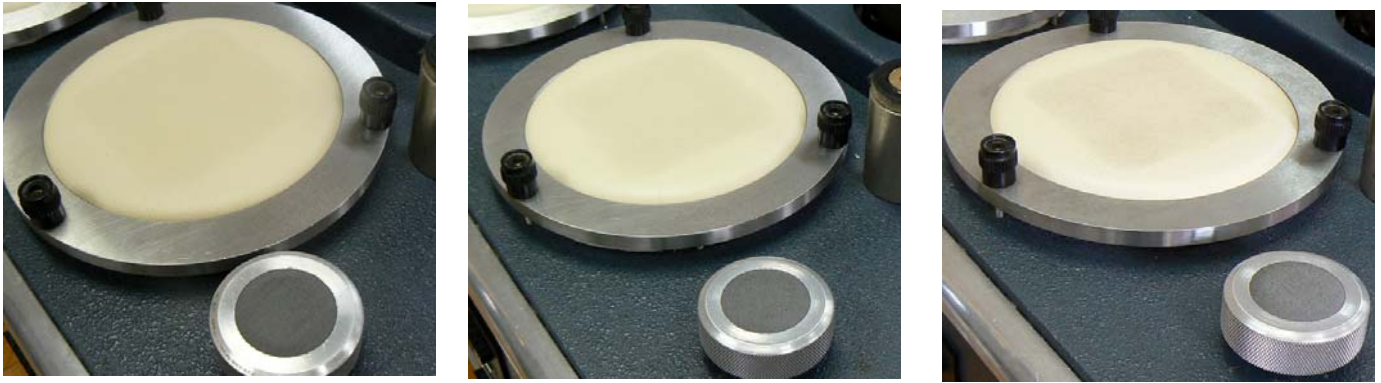
Observations during testing revealed that the pre-treated sample tested with the EMPA soiling cloth did not pick-up as much dirt from the cloth as the other samples. After the full 3,500 cycles the cloth looked much as it did at the beginning, whereas the cloths used on the other leather samples were much paler. The leather also looked less soiled, the colour change being about half as much as for the other leather test pieces.

Cleaning with Leather Cleaner after soiling was also easier for the pre-treated leather, though Leather Cleaner also returned the untreated leather to its original appearance too. Using de-ionised water for the control did not effectively remove the soilant and a gradual build-up of colour was noticed over the three cycles.



Untreated leather became more soiled over the course of the three cycles, mainly because a wet cloth was not able to remove the soilant effectively between cycles.

The transfer of soilant diminished for the sample pre-treated with Pelle Conditioner/Protector after each full cycle of cleaning, treatment and soiling, suggesting some build-up of protection even after cleaning with the Leather Cleaner.



Sequence showing that after three cycles of soiling, cleaning and protecting, standard upholstery leather actually picks up less soilent after one cycle.

Effects of rubbing were assessed using grey scales. These are internationally recognised grey-coloured scales which are used to give a numerical rating to colour transfer onto a rubbing pad and colour removal from a rubbed leather.

Grey scale ratings go from 1 (worst affected) to 5 (not affected). A rating of under 3 for colour transfer or removal generally signifies a highly visible adverse effect.

After applying soilent in the Martindale tester, the leather surfaces were tested using the Veslic apparatus.

This apparatus rubs a felt pad to-and-fro on the leather surface under load.

The purpose of this testing was to see if the Pelle treatments had any ability to improve the performance of a standard leather finish.

RESULTS

Our results were as follows:

Sample identification	EN ISO 105 Assessment			ISO/DIS 16131 Requirement	Pass / Fail
	Procedure	Marring (AO2)	Transfer (AO3)		
Pre-treated with Conditioner/Protector control cloth	wet 250 rubs	4-5	4-5	3-4 min	Pass
	wet 500 rubs	4	3-4	3-4 min	Pass
	perspiration 360 rubs	4-5	4-5	3-4 min	Pass
Pre-treated with Conditioner/Protector soiling cloth	wet 250 rubs	4-5	4-5	3-4 min	Pass
	wet 500 rubs	4	3	3-4 min	Fail
	perspiration 360 rubs	4	4-5	3-4 min	Pass
Cleaned with Leather Cleaner – control cloth	wet 250 rubs	4-5	4-5	3-4 min	Pass
	wet 500 rubs	3-4	2-3	3-4 min	Fail
	perspiration 360 rubs	4-5	4-5	3-4 min	Pass
Cleaned with Leather Cleaner – soiling cloth	wet 250 rubs	4	4-5	3-4 min	Pass
	wet 500 rubs	3	3	3-4 min	Fail
	perspiration 360 rubs	4	4-5	3-4 min	Pass
Control samples cleaned with de-ionised water – control cloth	wet 250 rubs	4-5	4	3-4 min	Pass
	wet 500 rubs	3	2-3	3-4 min	Fail
	perspiration 360 rubs	3-4	2-3	3-4 min	Fail
Control samples cleaned with de-ionised water – soiling cloth	wet 250 rubs	3	2-3	3-4 min	Fail
	wet 500 rubs	1	1	3-4 min	Fail
	perspiration 360 rubs	3	1-2	3-4 min	Fail

Note, in all our testing, a period of at least one week was allowed to elapse before any Veslic rubfast testing took place. This ensured complete airing off of any traces of volatile ingredients, including water.

Results show that rubfastness was mostly superior for the control leathers over those tested with the soiling cloth. This could be caused by a number of factors including the composition of soilants with which the cloth is impregnated or the soiling cloth being rougher than the standard cloth, causing more abrasion.

Results for the pre-treated leather show a marked improvement over standard leather, especially when comparing the soiled samples. The results were much more similar for the cleaned leathers, but the pre-treated leather was actually better when pushed to its performance limit at 500 wet rubs.

CONCLUSIONS

Results from this set of controlled tests showed that:

- Pre-treating the leather with Pelle Conditioner/Protector made the leather more resistant to soiling.
- Pre-treating the leather also reduced the effect of intensive rubbing on the appearance of the leather.
- Pre-treating the leather also made removal of any soiling easier.
- The use of the Pelle Cleaner on the soiled test leather was able to restore the appearance to the original condition.
- The absence of treatment with the Pelle Conditioner/Protector lead to a build-up of soiling which could not be removed with water alone.
- Soiling resistance built up with successive use of the Pelle Conditioner/Protector.

The tests showed substantial benefit in terms of the Pelle product's ability to prevent soiling and/or remove soiling. Progressive use of the products improved the level of protection even further.