

Treatment of leathers with silyl carboxylic acids

Organo silicone compounds are responsible for water resistance and consistency of properties at extreme temperatures. They impart peculiar characteristics when treated on surfaces. Among them, chlorosilanes are most reactive compounds. These chlorosilanes, if oxidised to acids and complexed, crosslinked or grafted or modified on leather, should impart water resistance and better lubrication properties to leather.

In order to achieve these properties for leathers, silyl carboxylic acid was prepared from dimethylchlorosilane and then treated on leather.

A mixture of p-chlorotoluene and dimethylchlorosilane was added drop-wise into a flask containing calculated amount of molten sodium kept under toluene. The rate of addition was so adjusted that the reaction proceeds smoothly. After complete addition, the violet coloured mixture in the vessel was further heated for about 2 hours. The excess sodium was destroyed by the addition of alcohol. The contents were filtered, washed with toluene and fractionally distilled; p-dimethylsilane thus prepared was oxidised using potassium permanganate in the presence of pyridine.

The excess pyridine was destroyed by the addition of methanol. The filtrate was acidified. The precipitated acid was collected, washed with water and then dissolved in sodium carbonate. All the traces of pyridine was removed and finally reprecipitated with hydrochloric acid.

Chrome leather was treated with this p-dimethylsilyl benzoic acid in between two chrome tannages. A parallel control experiment was also conducted in the absence of acid for comparison. The leather treated with p-dimethylsilyl benzoic acid was found to have good nap and dry-feel. This may be due to the fact that the acid would have complexed with chrome in between two chrome tannages and thus resulted in improved surface properties. Further work is in progress in the preparation of different types of silyl acids and in treating the leather to achieve better physical properties to leather.

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REFERENCES

1. *Silicones*, Ed. Fordham S., George Newmex Limited, 228 (1960).
2. *US Pat.* 3, 423, 236. (1969)
3. *Rebek, M., Schurz J. & Spoesk H., Monatsh Chem.*, 98, 1161 (1967).