KN-52-5 Substitutes for Para Soaps and Turkey Red Oil in the "Watchung" Pigments

By: M. B. Ver Nooy 5/51

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NEWARK PLANT
PIGMENT COLOR RESEARCH REPORT

SUBSTITUTES FOR PARA SOAP AND TURKEY RED OIL
IN THE "WATCHUNG" PIGMENTS

Period Covered May, 1951

FILE: 222.24

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NEWARK PLANT

PIGMENT COLOR RESEARCH REPORT

Final Report

Title: SUBSTITUTES FOR PARA SOAP AND TURKEY RED OIL IN THE "WATCHUNG" PIGMENTS

Period Covered: May, 1951

Charge: 1101-11-32

SUBMITTED BY: M. B. VER NOOY

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INTRODUCTION

The worldwide sulfur shortage has forced the government to restrict severely the amount of sulfonated castor oils, such as turkey red oil and the para soaps, available to industry. The sharp cuts made in the Pigments Department's quota necessitated a search for satisfactory substitutes for these agents in the manufacture of many colors.

Among the colors affected are the "Watchung" pigments which, with the exception of RT-618-D, are large users of Spencers para soap (N-484). For example, a 2375 lb. batch of RT-428-D calls for 88 lbs. of para soap. A laboratory series was run on RT-428-D and RM-417-D in which the para soap was omitted and other more readily available agents substituted. The products were checked for tinctorial properties, lightfastness, texture, ink mill behavior, and resistance to bleed. In the case of RT-428-D, two of the agents were used successfully in plant batches.

SUBSTITUTES TESTED

Potassium laurate (N-358)
Petronate (N-490)
Distoline (N-641)
Textile finishing oil (N-717)

CONCLUSIONS

RT-428-D:

Omission of para soap had no effect on the general properties of RT-428-D. The para soap substitutes had no apparent effect on tinctorial properties, except for potassium laurate, which yielded a very slightly lighter masstone, and Distoline, which yielded a very slightly darker masstone and weaker tint. All were equal to standard in lightfastness, texture, ink mill behavior, ink consistency, and in bleed in toluene, mineral spirits, 1:1 MEK-TCP, alcohol, and hot water.

Plant trials were made substituting textile finishing oil (N-717) and Petronate (N-490) for para soap on an equal weight basis. The batch made with N-717 was equal in all respects to a control batch; the lot treated with N-490 matched the control except for a darker masstone.

On the basis of laboratory and plant data, para soap may be omitted from the RT-428-D formula. If it is felt that an agent is desirable to control uniformity of plant production, any of those listed can be used, with the possible exception of Distoline. Application of the known variables should correct any minor variations in tinctorial properties.

RM-417-D (Alumina hydrate-blanc fixe lake of RT-428-D):

Omission of para soap had no apparent effect on RT-428-D, but in the case of RM-417-D it gave a lighter masstone and a bluer tint. Consequently an agent appears to be more essential in the RM-417-D process. Potassium laurate and Petronate can be used with no change in the tinctorial properties. Both Distoline and the textile finishing oil yield a slightly lighter masstone, which may be corrected by application of the usual variables in the plant. All are equal to the standard in lightfastness, texture, ink mill behavior, ink consistency, and in resistance to bleed in paraffin or in animal fats.

Because of the similarity of the processes, it is probable that the subject agents may be substituted for para soap in RE-482-D, RM-484-D, RT-597-D, and RT-663-D.

REFERENCES

N.B. 1390, Expts. 24, 25

RT-428-D, lots 29223, 29292, 29426