International Journal of Research in Engineering and Applied Sciences
Vol. 6 Issue 7, July - 2016
ISSN: 2249-3905 | Impact Factor: 6.573 |Thomson Reuters Researcher ID: L-5236-2015

INNOVATIONS FOR BETTER PERFORMANCE OF WOOD COATINGS

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ABSTRACT

For coating materials the only satisfactory way to really reduce a wood's natural color, when it is too dark is to use a wood bleach. A bleach is also required when the wood has an objectionable cast or tint. If it has a decidedly reddish cast then the red color will always show through, no matter how many coats of a dark stain are applied. The only way to get the red out is to first bleach the wood to get practically, all the original color out, then re-stain it in the shade desired.

Keywords: Wood, Impregnation, Emulsion, Coatings

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INTRODUCTION:

Wood innovations highlight the benefits of latest wood coating, along with its best practice to produce also. It is a known fact that coatings are applied on wooden surfaces to protect them from different natural and manmade factor, which can later cause harm to wood. This possibly happens over many years due to exposure to different forms of weather.

For long lasting performance of wood products, coatings both for interior and exterior applications are extremely important as it protects the wood from numerous natural factors (1-2). As the structural and furniture industry grows in India, it is essential for Indian wood consumers to know about wood coatings and the best practices associated with the maintenance of furniture and other related products.

The practice started with the wax and linseed oil, shellac etc where it went through pre catalyzed nitrocellulose with fancy coatings and then eventually the evolution went towards the water based coatings, UV coatings and bio coatings (3-5).

Now the changes in wood coatings takes place in many Steps. Earlier it was solvent base coatings or oil base coatings now these have been changed to water base coatings. Keeping VOC under permissible limits. Next change which is noteworthy now water and solvent base coatings in one system.

EXPERIMENTAL PROCEDURE:

Materials and method:

First of all any wood coating is decolourised and made of same color by bleaching. Than impregnation on wood surface is done by micro emulsion (ref paper no 5) . Next coat will be on sealer which is also water and solvent both soluble

Emultop – 2

1- 2 ethyle hexyl acetate =70.00

2- Toluene ==2.345

3- NBA = 2.187

4- DAP = 5.174

5- NC 30/50= 14.800

6- Surfactant 3399=9.50

7- Silicon Oil=0.20.21

Above product replace both the product.ie water base and solvent base because this is both soluble and keep VOC under permissible limits. Result as for as gloss and scratch resistance is concern are excellent.

We may tone and applied on any type of wood and synthetic wood surfaces. Product is compatible with various colorants and feel modifiers.

Various types of coatings which has been tried on different type of surfaces are as follows.

1- Pure Acrylic emulsion.

2- SBR latex emulsion.

3- Styrene Acrylic emulsion.

4- Elastomeric emulsion.

5- NC emulsion

6- C.A.B emulsion

7- PUD

PUD Coating has further improved the performance with one and two component system. With solvent PU, it is two component system however in case of PUD it is single component. Two component Polyurethane coating (interior/ soft application) .

Hydroxy acrylic resin (60%) = 57.5

Cellosolve acetate = 3.0

Butyl acetate = 7.5

1% DBTL in xylene= 2.0

Hardner

Desmodur L- 75 Aromatic type= 14.0 (BASF)

Xylene= 8.0

Butyl acetate= 8.0

Two component coating formulation

PU (exterior)

Butyle acetate = 18.5

Hydroxyl acrylic resin= 54.6

Cellosolve acetate = 15.o

Xylene= 12.4

1% DBTL in xylene= 0.5

Tinuvin 1130(20%)= 12.0

But we have switch for excellent performance in PUD with single component.

PUD wood coating (water base).

PU= 75.0

DM water= 16.40

Glycol ether= 3.0

Surfactant (non anionic)=0.50

Defamer=0.30

Matting Agent= 1.50

Paraffin wax dispersion=3.00

Theology modifier=3.00

With the above product cost is little bit higher but meet all the technical and commercial specification including environment regulation.

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