

Intermediate Module 330

Application – Non-metallic Substrates

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Summary

In Module 206, we considered the different types of substrates and explained the importance of cleaning surfaces before applying coatings and some of the techniques used to do so. This Module expands upon that basic information, concentrating on a wide variety of non-metallic substrates. We discuss the range of properties and how these affect the techniques available to us for surface preparation and application of coatings.

It is expected that it will take approximately 8 to 10 hours to complete this module, including the practical work involved.

Structure of the Module

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Learning Objectives

For each topic in the module, there is a learning objective. These objectives are listed immediately before the Study material.

Marking Scheme

The marks are allocated to the different features of the module, as follows:

ASG 1	35%
CMA	20%
End Test	<u>45%</u>
TOTAL	<u>100%</u>

An overall mark of 50% or more is necessary for successful completion of the module, with students achieving at least 40% of the marks available in each element.

Self Assessment Questions (SAQ's)

The answers to SAQ's can be found in Appendix 1. If you have any difficulties, go over the text again to make sure that you understand the answer. Ask your Tutor or Counsellor to explain anything you do not understand.

Assignment Exercises (ASGs)

At the end of Section 4, you will be asked to carry out an Assignment. The ASG can be found in Appendix 2. If you have any difficulties in carrying out the work, ask your Tutor or Mentor for advice. Please note that these ASGs are optional, but final marks will be affected accordingly.

Computer Marked Assessments

When you have finished your module, you must complete your CMA online.

The Module Calendar

We expect that the amount of learning material in this module can be completed within a month of starting.

Acknowledgements

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Objectives

At the end of this module, you should be able to do the following:

Section 1 – Types of Non-Metallic Substrates

- 1.1. List the categories of non-metallic substrates, giving examples, and identifying the reasons why coatings are applied to them

Section 2 – Surface Properties

- 2.1. Describe the factors affecting adhesion of coatings to non-metallic substrates
- 2.2. Identify sources of contamination that could affect the properties of the coating

Section 3 – Substrates and Preparation

- 3.1. Describe the main techniques used to prepare the surfaces of substrates for coating application
- 3.2. Identify specific factors affecting the surface preparation of glass and other vitreous materials
- 3.3. Identify specific factors affecting the surface preparation of wood-based materials
- 3.4. Identify specific factors affecting the surface preparation of fired clay substrates such as pottery, brick and breeze block
- 3.5. Identify specific factors affecting the surface preparation of substrates made of tar, pitch and bitumen
- 3.6. Identify specific factors affecting the surface preparation of cementitious and stone products
- 3.7. Identify specific factors affecting the surface preparation of thermoplastic and thermosetting substrates

Section 4 – Application

- 4.1. Identify techniques used in the application of coatings to glass and other vitreous materials
- 4.2. Identify techniques used in the application of coatings to wood-based materials
- 4.3. Identify techniques used in the application of coatings to fire-clay products such as pottery, brick and breeze block
- 4.4. Identify techniques used in the application of coatings to tar-based substrates
- 4.5. Identify techniques used in the application of coatings to cementacious and stone products
- 4.6. Identify techniques used in the application of coatings to plastic substrates
- 4.7. Explain methods for measuring and monitoring of films