

Study Guide

Module 204 – Level 2

Paint & Ink Manufacture & Rheology

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Summary

The manufacturing process for paints and inks is designed to produce a final product which has a uniform consistency and which conforms to appropriate test standards. These tests ensure that the product can be applied by the end user and that the coating will then dry to provide a film with acceptable properties.

The process involves the intimate mixing of several raw materials – some solid and some liquid – so that they form a stable dispersion. The quality of the dispersion can have a profound effect on the storage properties, ease of application, appearance and performance of the coating.

This module explains the purpose and methods of dispersion and introduces the types of pigment involved in the process. It also describes some of the important properties which govern the process and the basic tests used to confirm that this has been achieved.

It is expected that it will take approximately 10 hours to complete this module, excluding the Assignment work involved.

Prerequisites

Before working through this module, you should first read through the “Student Guide” provided by the British Coatings Federation. This gives information on the back-up and support provided for persons studying this and other modules.

Structure of the Module

It is expected that it will take approximately 10 hours to complete this module, excluding the Assignment work involved.

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 – part 1	20%
ASG – part 2	15%
CMA	20%
TMA	<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 Company Mentor to explain anything you do not understand.

Assignment (ASG's)

Two ASG's can be found in Appendix 2. If you have any difficulties, ask your Tutor or Company Mentor for advice.

Computer Marked Assessments (CMA)

When you have finished the module, a note in the text will guide you to the Computer Marked Assessment (CMA) on the website. This will also confirm that you have completed the module and must arrange an End Test.

The Module Calendar

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

Note: *The subject of Paint Manufacture and pigment dispersion is dealt with in detail in OCCA Monograph No. 5 - Dispersion & Dispersion Equipment*

Module Objectives

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

Section 1 - Pigment Dispersion

- 1.1 Describe the process of pigment dispersion and its likely problems, illustrating the possibilities using a labelled diagram.
- 1.2 List the functions of pigment dispersion and outline the role of the let-down process.

Section 2 - Pigmentation

- 2.1 Classify eight named pigments and extenders under the main headings of Inorganic and Organic pigments and the sub-headings of Natural and Synthetic pigments.
- 2.2 Outline the general properties of pigments.

Section 3 – The Manufacturing Process

- 3.1. Given a list of eight examples of dispersion machinery, assign each item to one of the following basic types:
 - media mill
 - high-speed disperser
 - rotor-stator mill
 - heavy duty mill

- 3.2. Identify essential stages in paint manufacture by filling in the blanks in the supplied flow diagram and defining each term.