

Study Guide

Intermediate Module 404

Raw Materials

Introduction and Manufacture of Media

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Summary

Module 404 introduces the different types of media used in surface coatings and how they may be classified. The formation of polymers is described, and the mechanism of film formation by non-convertible and convertible media explained. A detailed description of some non-convertible media is given together with some information on their manufacture. This is supplemented by an overview of other non-convertible media.

Two categories of convertible media are discussed in detail, including their manufacture. An overview of other convertible media is then provided.

The final section contains an introduction to water-borne media and how resin polymers may be made water-reducible.

Structure of the module

The module training material consists of 4 sections, 1 set of Self Assessment Questions (SAQ), 1 Computer Marked Assessment Questions (CMA), 1 Assignment (ASG) and an End Test (TMA).

The module is designed to take about 10 hours of study. This excludes the time taken to write up the report for the ASG.

Self-Assessment Questions (SAQ)

Are designed to enable you to check your own progress. Questions are asked as you progress through the module. You should write down your answers and then check them against the answers given in the Appendices. No marks are awarded for SAQs.

Computer Marked Assessment Questions (CMA)

Are a multi-choice question set that tests your understanding of the module. Please carry out this test before you submit any other work for marking by your tutor. These are completed online, you will need to log onto your study portal and then follow the CMA link/ instructions.

Assignment (ASG)

The ASG are an exercise in which the student research into and reports on certain objectives. You can discuss your proposed assignment with your tutor and mentor before commencing work. You will need to write a report on the assignment, which is then sent to your tutor for marking. Please see further instructions included in the Appendix on ASG Guidance Notes.

Tutor Marked Assessment (TMA)

Is a mandatory end test question paper taken under 'closed books', fully invigilated exam conditions. These are normally held on-site with an invigilator in attendance, which is normally your workplace mentor. The student or mentor will contact Lorraine Beard, and she will arrange for the TMA and instructions to be sent, by email to the chosen invigilator, and then this is then given to the student on the day and time that has been chosen.

Marks for the module

CMA	20%
ASG	35%
TMA	45%
	100%

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. In addition, an overall mark of 50% - 64% must be achieved for a PASS to be awarded, an overall mark of 65% - 84% must be achieved for a Merit and over 85% for a Distinction.

Module Pre-requisites

These modules include references to scientific concepts relating to coatings technology. For example, those identified with an asterisk contain many references to chemical formulae and reactions. Therefore, it is a requirement that you have a scientific education, with Chemistry and Physics to at least UK Advanced Level or higher, of which you can provide evidence.

[Overview of qualification levels](#)

Persons taking these modules should be employed or have recently been employed in the coatings or a related industry.

Most intermediate students will have studied some modules at foundation level. However, students who have not studied modules at foundation level but have a scientific background and experience of the coatings industry should be able to benefit from this module.

Successful completion of six modules, including at least four at level 4 entitles a student to a full, Level 4 International Certificate in Coatings Technology (ICCT), awarded by The Coatings Training Institute. However, individual certificates are also presented if the student chooses to take less than six modules.

Persons taking modules at Intermediate Level should be employed or have recently been employed in the coatings or a related industry. They should have studied some science and chemistry.

Most intermediate students will have studied some modules at foundation level, and if you have studied the Foundation module 201, you will recognise that the first section of module 404 is a revision of relevant topics dealt with there. However, if you have had some years of experience in the coatings industry, or have a good chemistry background, you should be able to cope with this module without having first studied the Foundation module.

Module Objectives

Section 1. Classification of Media. Non-Convertible & Convertible Film Formers

- 1.1 Classification of Media
- 1.2 Film formation of Non-Convertible Media
- 1.3 Convertible Film formers.
- 1.4 Formation of Polymers – Polymerisation

Section 2. Synthetic Non-Convertible Media

- 2.1 Acrylic Polymers
- 2.2 Vinyl Polymers
- 2.3 Polymer Emulsions
- 2.4 Non-Convertible Media – Review

Section 3. Convertible Media

- 3.1 Composition and Manufacture of Oleoresinous varnishes
- 3.2 Terminology to describe Oleoresinous varnishes
 - Current Use of Oleoresinous varnishes
- 3.3 Alkyd Resin Composition
- 3.4 Alkyd Resin Manufacture
- 3.5 Convertible Media – Review

Section 4. Water Reducible Media

- 4.1 Principal methods of producing water reducible media
- 4.2 Emulsions from monomers and preformed polymers
- 4.3 Polymers containing polar groups
- 4.4 Emulsions & Solutions – Comparisons

