

Study Guide

Module 406 – Level 4

Oils, Driers and Oleoresinous Media

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Summary

In this Intermediate Level Module, the major fatty acids found in various vegetable oils are listed. The properties of an oil are shown to derive from the particular combination of fatty acids they contain.

Test methods to determine the properties of oils are given to enable them to be classified with regard to their drying potential.

The importance of driers is stated and the composition and properties of the principal metallic derivatives of synthetic and Naphthenic acids given.

Finally, oleoresinous varnishes are discussed with the distinction between recent and synthetic hard resins being made.

The formula of rosin is shown, and the manufacture, composition and characteristics of hard resins obtainable from it are described. Some present-day uses for these varnishes are given.

Structure of the Module

The module training material consists of 4 sections, 1 set of Self Assessed Questions (SAQ), 1 Computer Marked Assessment Questions (CMA), 2 Assignments (ASG) and an end test (TMA).

The module is designed to take about 8 hours of study. This excludes the time taken to write up the report for the ASG'S.

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. Please note that there are 2 ASG's in this module

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.

Module Objectives

When you have finished this module, you should be able to do the following:

Section 1. Fatty Acid Components of Oils

- 1.1 List the vegetable oils used as raw materials for the manufacture of intermediates for use in the coating industry
- 1.2 List the common fatty acids found in vegetable oils
- 1.3 Name the major fatty acid components in linseed, tung, soya bean, safflower, dehydrated castor, oiticica, castor and coconut oils and tall oil fatty acids

Section 2. Properties Of Oils and Drying

- 2.1 Define and explain the meaning of the terms -- acid value, saponification value, iodine value and hydroxyl value
- 2.2 Determine the acid value, saponification value, iodine value, refractive index and relative density of an unknown oil and from the results, classify the oil
- 2.3 Show how the results produced from 5.5 above are used as a basis for the classification of oils
- 2.4 Explain the following terms: raw oil, refined oil, conjugated oil, stand oil, enamel oil, blown oil, boiled oil and gel time

Section 3. Influence of Driers

- 3.1 State the composition and properties of the metallic derivatives of naphthenic and synthetic acids with particular reference to lead, cobalt, manganese, zirconium, zinc and calcium

Section 4. Oleoresinous Varnishes

- 4.1 Distinguish between recent and synthetic hard resins giving two examples of each

- 4.2 Briefly describe the manufacture, composition and characteristic properties of the hard resins obtainable from ROSIN
- 4.3 Describe the present-day uses of oleoresinous varnishes