Intermediate Module 323

The Evaluation of Colour

Author: C G Crawforth
Updated by T Sayer, P Collins

Introduction

Section 1 is concerned with the main principles of colour. These include the illuminant, absorption and reflection of light and the workings of the eye, along with certain visual defects.

Section 2 covers colour mixing and pigment selection. Here we look at both additive and subtractive mixing and important considerations to make when selecting pigments for coloured formulations.

Finally, in **Section 3**, we deal with the important subject of colour measuring instruments. We look at various spectrophotometers and colourimeters and examine their use in quantifying important optical properties of coatings.

Structure of the Module

The module consists of a theory block of 3 sections, 1 CMA and 1 Assignment.

The total study time will be approximately 9 hours, with additional time being required for the CMA and the Assignment. Experience indicates that on average, the total time to complete this module will be of the order of 4 – 6 weeks.

Marks for the module

CMA	20%
ASG	35%
End Test	45%

For full certification, the CMA and the ASG must be completed satisfactorily.

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

It is advisable to wait until you have completed 3 modules before sitting the end tests, as this will involve only one visit to the examination room.

Module Prerequisites

It will be a distinct advantage if students tackling this module have already studied some science subjects to GCSE or relevant GNVQ level and have completed other modules at Foundation level

A student should be currently employed within the Coatings Industry or be with a supplier to this Industry.

Past relevant experience of employment within the industry would be a distinct advantage.

SAQ – Self Assessment Questions

Although these do not carry any marks for completion, nevertheless they are important to the student, as they show that the Section has been clearly understood.

The answers to SAQs may be found in Appendix 1.

Assignment

This will be a piece of research to be carried out and reported on in full.
It represents a significant proportion of the total marks for this module.

Details may be found in Appendix 2.

CMA – Computer Marked Assessment

The CMA may be found on the website. Full details of how to complete this important part of the Module may be found in the general introduction to this module.

Module Objectives

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

Section 1 – Colour principles

1.1 Explain the term "colour perception requirements"
1.2 Discuss the energy spectra of standard illuminants
1.3 Describe selective absorption of light
1.4 Draw a diagram of the human eye
1.5 Explain the terms retinal rods and cones
1.6 Explain the terms normal and abnormal colour vision

Section 2 – Colour mixing and pigment selection

2.1 Explain additive and subtractive colour mixing
2.2 Describe guidelines for pigment selection
2.3 Explain the terms Blue wool and greyscales

Section 3 – Colour measuring instruments

3.1 Discuss manual colour matching v instrumental
3.2 Describe the spectrophotometer
3.3 Describe the colourimeter
3.4 Discuss other uses of colour measuring instruments