

Study Guide

Module 206 – Level 2

Surface Preparation

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Module 206 deals with the first stages in preparing a surface prior to the actual application of a surface coating. What is the composition of the surface? What substances are naturally found on the surface and what do we have to do to remove them so that a subsequent coating applied to the surface will adhere?

The module, first of all, examines the nature of the surface itself and the types of surfaces that are coated, ranging from metals to wood-based substances to plastics to masonry materials. The surfaces themselves differ with some being absorbent and others non-absorbent, while some are alkaline in nature. The principal contaminants, rust and mill-scale, and grease, which are found on substrates are considered, and general methods of removing them are introduced.

Section 3 deals in detail with the mechanical means of removing rust. The on-site and off-site techniques detailed range from wire-brushing to various methods of shot and grit blasting. The advantages and disadvantages of each are outlined. The final section introduces the various chemical methods of cleaning a surface, including degreasing without going into detail of the plant used. (Chemical methods of cleaning and pre-treatment are considered in detail in Intermediate module 329.)

The module includes one CMA on all the work in the module and one Assignment on degreasing. It is anticipated that the module as a whole will take, on average, about 10 hours of study time.

INTRODUCTION

Module 206 deals with the first stages in preparing a surface prior to the actual application of a surface coating. It deals with the composition of the surface, the substances which are naturally found on the surface and what we have to do to remove them so that a subsequent coating applied to the surface will adhere.

Prerequisites for Module 206

- (a) You should have studied some science at GCSE or GNVQ at an appropriate level; and
- (b) You should be employed currently in coatings or other related industry.

Structure of the Module

Section 1: Surface Types)
Section 2: Surface Contaminants)
Section 3: Surface Properties) Study Time
Section 4: Basics of Surface Cleaning) Approx. 10 Hours

ASG on degreasing

Compiling Report - 1½ to 2 hrs

Computer-marked assessment

Assessment within the Module

Self Assessment Questions (SAQ)	0%
Assignment (ASG) on degreasing	35%
Computer-marked assessment	20%
Tutor-marked assessment	45%

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.

Module Objectives

On successful completion of this module, you will be able to:

Section 1: Classify surface types

- 1.1 By means of tables or a diagram, classify the characteristics of surfaces as smooth or rough for the purpose of adhesion -- wood, metal, non-metallic building surfaces, paper, board, leather, plastics materials and fabric.
- 1.2 State one advantage and one disadvantage in each case exhibited by surfaces that are (a) absorbent, and (b) non-absorbent, in their use as substrates for a coatings material.

Section 2: Identify and explain surface contaminants

- 2.1 List the major surface contaminants, distinguishing between non-bonded and strongly bonded contaminants.
- 2.2 List the potential problems that might be found on a substrate to be coated and give reasons why such problems need to be resolved before applying a coating.

Section 3: Classify surface properties

- 3.1 Classify the range of metallic substrates according to porosity and reactivity.
- 3.2 Classify non-metallic substrates according to their levels of porosity, reactivity and alkalinity.

Section 4: Describe methods of surface cleaning

- 4.1 Describe types of method used for surface cleaning.
- 4.2 Describe methods of rust and mill-scale removal on-site and off-site including different mechanical methods: e.g. wire brushing, grit and shot blast cleaning.
- 4.3 Outline chemical methods for the cleaning of substrates.