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Unit 34: Carry Out Complex Sampling Operations within Polymer Processing and Related Operations

Overview

This unit is for those with responsibility for carrying out complex sampling activities.
Complexity can be characterised in a number of ways depending upon the work context and occupational area. The activity may, for example, involve the performance of progressive and sequential operations that are operator and environment sensitive. Special conditions may apply to the sample taking and may have to be carefully monitored during sampling. Variations and contingencies may be critical to the successful taking of the sample with opportunities to make adjustments to the process as necessary. The consequences of error in terms of cost, danger or environmental impact may also have an effect on the level of complexity at work.

This unit deals with the following:

1. Evaluate the requirements of complex sampling
2. Prepare for complex sampling
3. Obtain representative samples
4. Maintain integrity of sample

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices as they apply to you.

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Performance criteria

You must be able to:

P1 Work safely at all times, complying with health and safety, environmental and other relevant **regulations and guidelines**
P2 Identify correctly the **purpose of sampling**
P3 Establish the **variability** inherent in the sample source and assess the implications on the purpose for which the sample is being taken
P4 Evaluate the options to minimise the variables resulting from different sampling methods
P5 Identify the **conditions** for sampling and take account of these
P6 Establish the criteria that will lead to the appropriate sample being taken which is fit for end purpose
P7 Select the optimum sampling procedure
P8 Amend **sampling plans and procedures** when necessary to suit conditions and to deal with contingencies
P9 Sequence the sampling procedure correctly
P10 Select sampling points and frequency to ensure an appropriate sample is provided
P11 Ensure that the equipment selected is appropriate to sampling process
P12 Check that the equipment is in serviceable condition and confirm calibration status as being current
P13 Prepare equipment correctly
P14 Ensure that all required **resources** are ready and available
P15 Control the conditions for sampling to optimise sample quality
P16 Ensure that the samples taken are representative of **requirements**
P17 Ensure that the samples are taken following **sampling plans and procedures**
P18 Label and identify the sample correctly
P19 Record the **conditions** under which the sample is taken
P20 Record any deviations from set procedure or anticipated results and take **action** in accordance with company procedures
P21 Clean sampling equipment and materials appropriately and dispose of other equipment and materials according to working practices
P22 Record **information** about sample accurately to permit traceability using appropriate **documentation**
P23 Stabilise and **maintain** the condition of the sample
P24 Protect the sample from sources of contamination
P25 Take **action** in the event of abnormal occurrences affecting sample condition in accordance with company procedures

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Knowledge and understanding

You need to know and understand:

K1 The specific organisational health, safety and environmental policies and other **regulations, legislation and guidelines** for your work area and why they are important

K2 The different types potential **hazards**, how they can be minimised and the action to take in the event of a work area hazard

K3 What the workplace procedures are for reporting potential **hazards** you are unable to deal with

K4 When, which and how personal protective equipment should be used

K5 The importance of checking equipment, how to do this and to whom you should report defects

K6 What risks are associated with the working environment

K7 What risk control measures are in place and how to comply with them

K8 Where to find **work procedures** and production requirements and how to interpret these

K9 What sort of documents are kept and how to complete them and the implications of not maintaining them accurately and legible

K10 The importance of disposing of waste **materials** safely and how to do this

K11 The sorts of **problems** that might occur and who you should report these to

K12 The purpose and importance of **quality assurance** checks, and when and how these should be carried out

K13 What the approved codes of practice/working practices are and why it is important to follow them

K14 What the procedures for sampling are

K15 What the principles of sampling systems and testing are

K16 What the purposes of sampling are, and the specific use to which the sample is to be put

K17 What the essential features of a sampling plan are

K18 What methods should be used for sampling and their impact upon source and the sample taken from it

K19 How to restore the source to the appropriate condition

K20 What constitutes a representative sample for identified purposes

K21 What factors influence the integrity of the sample

K22 What the basic principles and techniques of maintaining sample integrity are

K23 Why it is important to control conditions, and methods for establishing them

K24 What equipment should be used for sampling, and what variability the equipment would introduce

K25 Why calibration is important and how to check calibration

K26 How to identify defective equipment and the appropriate action to take to minimise risk to the source
K27 What methods can be used for dealing with the handling, storage and disposal of materials
K28 What cleaning materials and methods of use should be used
K29 What factors can affect sample quality
K30 Methods to be used to maintain, stabilise and store the sample
K31 What documentation and labelling systems should be used to ensure traceability during sampling

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Additional Information

Glossary

1. **Regulations/Legislation/Guidelines**: organisational procedures and guidelines, Work place Policies, Health, safety and environmental requirements and regulations relevant to the work and work area being carried out

2. **Problems**: those you can deal with directly, those which require the assistance of another operator to solve, those which you need to report and seek specialist assistance, those with an obvious probable cause, those with two or more possible causes, those with no obvious cause

3. **Hazards**: and control measures: waste, spillage, obstructions use of tools, hazardous materials. personal protective equipment, equipment, lifting and moving items

4. **Materials**: residual materials that can be recycled, waste materials for disposal

5. **Operating Procedures/Work Procedures:** Work instructions, Method Statements, Standard Operating Procedures

6. **Purpose of Sampling**:
   - 6.1. Sampling materials prior to post moulding
   - 6.2. Measuring moulded components for tolerances and variances
   - 6.3. Monitoring shrinkage parameters and variances
   - 6.4. Sampling moulded components for stress factors
   - 6.5. Conduct impact testing relevant to the components material and function

7. **Variability** to be established: location; time; stability; homogeneity; temperature

8. **Conditions** to be taken into account: access; location; timing; sampling points; frequency; duration; health and safety; environmental impact; hazards and risks

9. **Sampling plans and procedures**: time, frequency, duration, sequence and location

10. **Resources** required for sampling: equipment including personal protective equipment; materials; documentation

11. **Requirements** for sample quality: contamination; changing conditions; stability of sample; variability of source

12. **Action**: action taken relating to materials, personnel and/or equipment within the limits of your responsibility

13. **Information** to be recorded: relevant information concerning; time, conditions, locations, nature of sample, known hazards, required storage conditions, possible contamination sources

14. **Documentation:** appropriate sample taking records, labelling systems and quality assurance results

15. **Maintain** the condition of the sample by means: preservation; transportation, packaging; documentation

16. **Quality assurance** that will be determined by: The nature of the equipment being maintained, company policy, company national or international standards

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