

COGPOLY34

Carry out complex sampling 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 operational requirements and safe working practices AS THEY APPLY TO YOU.

Previous Version

Adapted from Unit D6 of Polymer Processing and Related Operations NOS – version November 2004. NB This unit is a tailored version of a LATA unit produced by S T & M Council, which was originally designated Unit 3.08.

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Performance criteria

You must be able to:

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

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Knowledge and understanding

You need to know and understand:

- K1 your personal responsibilities with regard to health, safety and the environment in the working area
- K2 your legal responsibility for your own health and safety, and the health and safety of others
- K3 what working practices ensure that the working environment is conducive to good health
- K4 what the approved codes of practice/working practices are and why it is important to follow them
- K5 the procedures for sampling
- K6 the principles of sampling systems and testing
- K7 what the purposes of sampling are, and the specific use to which the sample is to be put
- K8 the essential features of a sampling plan
- K9 what methods should be used for sampling and their impact upon source and the sample taken from it
- K10 how to restore the source to the appropriate condition
- K11 what constitutes a representative sample for identified purposes
- K12 what factors influence the integrity of the sample
- K13 the basic principles and techniques of maintaining sample integrity
- K14 why it is important to control conditions, and methods for establishing them
- K15 what equipment should be used for sampling, and what variability the equipment would introduce
- K16 why calibration is important and how to check calibration
- K17 how to identify defective equipment and the appropriate action to take to minimise risk to the source
- K18 what methods can be used for dealing with the handling, storage and disposal of materials
- K19 what cleaning materials and methods of use should be used
- K20 what factors can affect sample quality
- K21 methods to be used to maintain, stabilise and store the sample
- K22 what documentation and labelling systems should be used to ensure traceability during sampling

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Additional Information

Glossary

Purpose

Taking emission samples at various locations, sampling effluent levels in a river, taking samples from a structure to establish stress factors, carrying out environmental or clinical monitoring

Variability

Location, time, stability, homogeneity, temperature

Conditions

Access, location, timing, sampling points, frequency, duration, health and safety, environmental impact, hazards and risks

Sampling plans

Time, frequency, duration, sequence and location

Regulations and guidelines

All relevant health, safety and environmental regulations, organisational procedures and guidelines, standard operating procedures, national and organisational standards, site procedures and specific organisational Cogent is the Sector Skills Council for the Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers Industries

Resources required for sampling

Equipment including personal protective equipment, materials, documentation

Requirements for sample quality

Contamination, changing conditions, stability of sample, variability of source

Appropriate action to include Any action taken relating to materials, personnel and/or equipment within the limits of your responsibility

Information to be recorded All relevant information concerning; time,

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conditions, locations, nature of sample, known hazards, required storage
conditions, possible
contamination sources

Documentation Appropriate sample taking records, labelling systems and
quality assurance results

Maintain the condition of the sample

Preservation, transportation, packaging, documentation

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Suite Polymer Processing and Related Operations

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