



ZELLCHEMING

Association of Chemical Pulp and Paper Chemists and Engineers

Technical Committee for Recovered Paper Utilization (RECO)

Technical Sub-Committee for Recycling Technology (RECO 1)

1 Introduction

Representative sampling is of decisive importance for the evaluation of recovered paper treatment processes. Experience has shown that incorrect sampling can cause significant mistakes in laboratory testing, which then lead to results being misinterpreted.

2 Purpose and Scope

This method describes a standardized sampling procedure for recycled pulp suspensions from industrial and pilot plants. It applies to all types of pulp flows and process waters and includes recommendations for sampling procedures and the preparation of sampling reports.

3 Definitions

Mixed sample:

Sample obtained by mixing several random samples together. Sampling and mixing can be done both automatically and manually.

Random sample:

Sample obtained by one single sampling process.

4 Principle

Samples intended for testing must be representative of the entire amount of substance to be evaluated. The latter determines also the sampling procedure, number of samples to be taken and, if appropriate, combination of individual samples into a mixed sample. The overall sample quantity depends on the time and expenditure earmarked for testing.

5 Apparatus and Aids

Suitable, clean sample containers and vessels which meet the requirements of the sampling procedure, sample transport and processing have to be used. Aids must be prepared and provided specifically for each sampling point. Use only sample containers and aids such as buckets, ladles, beakers, etc. which have been cleaned.

Any protective clothing to be worn during sampling must be complete, fully functional and in accordance with the safety instructions and sampling points.

6 Preparations

Sample containers must be made available in sufficient numbers. Stock-encrusted sampling cocks must be cleaned before sampling.

7 Procedure

7.1 General aspects

Make sure that operating conditions are stable at the time of sampling and can be expected to remain stable over the entire sampling period. See to it that:

- Changes in the composition of recovered paper furnishes do not exceed the usual variation range.
- Additive formulations remain unchanged.
- Throughput is consistent.
- Enough time has passed since the most recent process change. The necessary delay depends on plant characteristics and throughput, and must be defined on the basis of experience.
- If process variations are inevitable, mixed samples obtained over a prolonged period are advisable to get representative results.
- The latter will be necessary, for example, in the case of pulpers being operated alternately with different furnishes.
- Random samples are taken at a time which is representative of the entire process.
- The order of sampling corresponds to the treatment process, taking into account also idle or dead times due to the storage in chests, if possible.
- All relevant operating and safety instructions are complied with when taking samples from a running machine!

7.2 Discontinuous process stages

- Make sure that the informative value and relevance of samples taken from or near intermittently operating machines are not affected by individual work cycles of the machine.
- If these machines are to be assessed at a certain time of their work cycle or over the entire work cycle, all sampling times must be accurately recorded with reference to the work cycle.

7.3 Sampling procedures

7.3.1 Sampling cocks

Open the sampling cock completely, if possible, and leave open until a fresh sample has been discharged. Fill and swill out the sample container with this first sample, then throw the sample away. Proper sampling starts and ends with the second fill.

7.3.2 Open containers

Make sure the sampling device is immersed deeply enough to obtain representative samples from open containers like pulpers or chests. Throw away the first sample. Proper sampling starts and ends with the second fill.

7.3.3 Random samples and mixed samples

Whether the process is to be examined on the basis of random or mixed samples must be decided in each individual case.

8 Sampling Report

The following data should be given in the sampling report:

- Date and time of sampling
- Location, plant system, plant unit
- Recovered paper furnish
- Chemical formulations
- Sampling point
- Any special features or peculiarities during sampling
- Operator in charge
- Optional: plant-specific data, for example throughput, energy demand, pressure, machine-specific values, reject rates