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Design and Evaluation of a Face-Wash Base

Practical 16 - Bench formulation practical

Aim

To prepare and evaluate a face-wash base using a controlled laboratory formula.

Principle

A face-wash base usually combines a compatible cleaning system with a controlled rheology. Formulation performance depends on surfactant active matter, dilution, pH and ingredient compatibility.

A formulation comparison is meaningful when the raw-material grades, batch size and evaluation conditions are recorded. Change one planned factor at a time or use a documented experimental design, and compare independently prepared batches rather than only repeated readings from one batch.

Materials and Requirements

- Approved mild-surfactant system and aqueous base
- Selected rheology modifier, pH and viscosity test methods
- Suitable mixing, temperature and measurement equipment
- Calibrated balance, suitable containers and identified evaluation equipment
- Controlled batch sheet and raw-data forms

Procedure

1. Define the purpose, formula, batch size, material grades and comparison conditions. Calculate all quantities before weighing.
2. Check equipment readiness and record material identities and actual quantities. Reconcile theoretical and actual batch mass.
3. Calculate each surfactant on its supplied active-matter basis.
4. Prepare the base by the selected ingredient order and controlled mixing, preventing excessive aeration.
5. Record pH, homogeneity, flow and the prescribed diluted-use foam response. Include the basis for preservation and compatibility studies in the report.
6. Evaluate the stated quality attributes on representative portions using the same method for all comparison batches. Record individual readings and any excluded observations with reasons.
7. Calculate the specified response, variability and material balance. Compare with predefined teaching or product criteria and discuss sources of variation.
8. Label retained preparations and dispose of remaining material through the laboratory procedure. Keep the complete preparation and evaluation record together.

Observations and Record

Enter actual measurements or the supplied teaching data. Record the method, material identity, conditions and units.

Attribute or stage	Method / conditions	Individual readings	Calculation / comment
Active-matter calculation	Record the adopted method	Record	Evaluate
pH and flow	Record the adopted method	Record	Evaluate
Foam response	Record the adopted method	Record	Evaluate
Homogeneity	Record the adopted method	Record	Evaluate

Calculations

• Component mass = total target batch mass x percentage / 100
• Batch recovery (%) = recovered mass / theoretical batch mass x 100

Worked Example

Illustrative 150 g batch requires 4.0% active surfactant: active mass = 6.0 g.
A 30.0% active supplied ingredient would contribute 20.0 g material if it alone supplied that active requirement.
Reconcile all nonactive components in the final batch mass.

Result and Interpretation

• Report results from the laboratory base without assigning clinical skin-treatment claims. Record appearance, homogeneity, relevant physical measurements and the defined observation period.
• State the preparation conditions and the evidence supporting the result. A satisfactory physical observation alone does not establish long-term stability, clinical performance or suitability for administration.

Precautions

• Prepare only the authorised teaching batch and identify it for laboratory evaluation.
• Follow ingredient-specific handling and disposal requirements.
• Record the need for a validated preservation system before any stored or distributed product is considered.
• Use the laboratory-approved formulation and equipment procedure. Teaching batches are identified for laboratory evaluation.

Viva Questions and Answers

Why calculate all quantities first?

It identifies inconsistencies in the formula and establishes the material balance.

Why use a controlled method?

Mixing, temperature and ingredient order can change the resulting structure.

Does a visually acceptable batch establish stability?

No; stability and microbiological quality need appropriate evidence.

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