RESULTS REPORT - WOOL FERTILIZER

The production of wool-based fertilizer is carried out through a chemical-physical process, using a solution with potassium hydroxide.

Once the wool and potassium hydroxide are added to the batch, the mixture is left to rest for 2 days. Then, through a cold decantation process, a first sample is taken for laboratory analysis, called Batch Plastic 1 / Decant. This sample contains only the fertilizer, without precipitate or supernatant.

Subsequently, the batch is stirred, and a second sample is extracted, called Batch Plastic 2 / Pure, which contains both the precipitates and the supernatant in the solution.

Key findings from the two samples:

PURE FERTILIZER - Batch Plastic 2 / Pure

- **pH**: 14.37 pH units
  An extremely alkaline pH, as expected from its formulation and its very high concentration.

MACRONUTRIENTS:

- **Nitrogen**:
  - Ammoniacal nitrogen: 751 mg N/L
  - Total Kjeldahl nitrogen: 894 mg N/L
    Nitrogen is a key component for plant growth, especially for the development

of leaves and stems. The concentrations of ammoniacal nitrogen are significant and will be rapidly absorbed by plants, while the total nitrogen includes other forms that will be released more slowly.

- **Phosphorus**: 380 mg P/L
  The amount is adequate to provide this nutrient to plants in their growth and production phase.

- **Potassium**: 78120 mg K/L
  Extremely high potassium concentration, suggesting that this fertilizer is intended for crops with a high demand for potassium, such as fruit trees, fruit-bearing vegetables, and tuber crops.

- **Organic Carbon**:
  Total organic carbon: 71950 mg/L
  This value suggests a significant amount of organic matter, which is beneficial for improving soil structure and nutrient retention.

MICRONUTRIENTS:

- Calcium: 524 mg Ca/L
- Zinc: 6.74 mg Zn/L
- Copper: 0.463 mg Cu/L
- Magnesium: 335 mg Mg/L
- Manganese: 3.09 mg Mn/L

The micronutrients are essential for various plant processes: zinc is involved in hormone and protein synthesis, copper in photosynthesis and cellular respiration, and manganese in enzymatic activation and photosynthesis. The concentrations found are adequate for the needs of most crops.

OILS AND FATS:

- 68.6 mg/L
  The presence of oils and fats may influence nutrient absorption by plants and soil balance. However, the level is moderate and should not significantly affect plant growth.

MICROBIOLOGY:

- **Salmonella spp. detection**: Absent
- **Fecal coliforms**: < 2.0 MPN/100 mL
- **Total coliforms**: < 1.8 MPN/100 mL
- **Escherichia coli detection**: Absent

HEAVY METALS:

- Arsenic: < 0.001 mg As/L
- Mercury: < 0.001 mg Hg/L
- Lead: 0.046 mg Pb/L

SUMMARY

This fertilizer has an extremely high potassium concentration, making it suitable for crops with a high demand for this nutrient. The high concentrations of chloride and electrical conductivity suggest that this fertilizer should not be applied to soils sensitive to salinity. The levels of micronutrients (copper, zinc, manganese) are adequate, and the concentrations of toxic elements (arsenic, mercury, lead) are low. It is recommended for use in well-drained soils, especially in high-value crops such as fruits and vegetables.

DECANTED FERTILIZER - Batch Plastic 1 / Decant

- **pH**: 14.4 pH units
  An extremely alkaline pH, as expected from its formulation and its very high concentration.

MACRONUTRIENTS:

- **Nitrogen**:
  - Ammoniacal nitrogen: 361 mg N/L
  - Total Kjeldahl nitrogen: 758 mg N/L
    This fertilizer has a high nitrogen concentration, which suggests that it is effective in promoting vegetative development. The difference between total and ammoniacal nitrogen suggests prolonged nutrient delivery to the soil.

- **Phosphorus**: 357 mg/L
  The amount is adequate to provide this nutrient to plants in their growth and production phase.

- **Potassium**: 78960 mg K/L
  Extremely high potassium concentration, indicating suitability for crops with a high potassium demand, such as fruit trees, fruit-bearing vegetables, and tuber crops.

- **Organic Carbon**:
  Total organic carbon: 70560 mg/L
  This value suggests a significant amount of organic matter, beneficial for soil structure improvement and nutrient retention.

MICRONUTRIENTS:

- Calcium: 153 mg Ca/L
- Zinc: 4.49 mg Zn/L
- Copper: 0.342 mg Cu/L
- Magnesium: 217 mg Mg/L
- Manganese: 1.96 mg Mn/L

OILS AND FATS:

- 39.5 mg/L
  The presence of oils and fats can influence nutrient absorption but should not significantly impact plant growth.

MICROBIOLOGY:

- **Salmonella spp. detection**: Absent
- **Fecal coliforms**: < 2.0 MPN/100 mL
- **Total coliforms**: < 1.8 MPN/100 mL

HEAVY METALS:

- Arsenic: < 0.001 mg As/L
- Mercury: < 0.001 mg Hg/L
- Lead: 0.046 mg Pb/L

SUMMARY

This fertilizer has an extremely high potassium concentration, making it suitable for crops with a high potassium demand. The high chloride content and electrical conductivity suggest it should not be used in soils sensitive to salinity. The micronutrient levels are adequate, and toxic element concentrations (arsenic, mercury, lead) are low. It is recommended for use in well-drained soils, particularly for high-value crops like fruits and vegetables.