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**EGG WASTE DRYNESS TEST AMB BRIEF**

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**TO:** QC-AMB  
**SUBJECT:** EGG WASTE DRYNESS TEST AMB BRIEF  
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## Introduction

The egg waste disposal and treatment requires the material to be dried, to a consistency to allow the Archimedes screw to force the material through a series of pipes into waste receptacles. However on occasion the pipes become clogged and it is believed that this clogging/clumping of the material is directly related the level of moisture in the egg waste material, which affects the size as to which the material can be ground down too.

To facilitate the investigation engineering are in the process of acquiring a moisture analyser from a vendor. The vendor will require estimated moisture content of the sample to be determined prior to any of their own testing, and then will be submitting customer recommendations for the equipment proposal based on these preliminary results. To this end, the Engineering department require assistance to determine the approximate Loss on Drying of egg waste material which has been previously dried and processed under the current system, Figure 1.

## Health and Safety

The Material is a product of the harvesting, however the mixture has been heat treated at 80degC to destroy any virus traces. Odour will be present so the task should be performed on a quiet day and all waste will be disposed of using the hazardous waste flow (i.e. incineration). The original sample will be returned to engineering for future use.

*Figure 1, egg waste material*



## Method

Following the 2 separate production harvests on ~18Nov2021 and ~25Nov2021 a 2 L receptacle will be filled by material from each harvest. This material will be a composite sample i.e. from a number of locations across the waste and then mixed and labelled with the following:

<b>Sample description:</b> _____
<b>Harvest Date:</b> _____
<b>Approximate Sample Volume\weight:</b> _____
<b>Sampling Date:</b> _____

- 1) For each of the 2 L egg waste sample, ensure that the screw lid is tightly shut and record the sample description.
- 2) Vigorously mix the sample for 30 seconds.
- 3) Label 6 glass container of appropriate size i.e. min 10mL, with your initial and numbers 1-9.
- 4) Accurately weigh the 6 labelled glass containers and record their mass to 4 d.p.
- 5) Place 1 of the 6 labelled glass container on the balance and tare the weight. Transfer and accurately weigh a 2.0000-2.1000g from the egg waste sample into labelled glass containers. Record the sample mass to 4 d.p. and the corresponding sample number written on the glass container.
- 6) Vigorously mix the egg waste sample for 10 seconds.
- 7) Repeat Steps 5 and 6 for a further 5 samples.
- 8) Set up the oven to the pre-programmed 100°C set point.
- 9) Verify the Oven's temperature on BAS.
- 10) Place the 6 samples in the oven.
- 11) Verify the Oven's temperature on BAS and record the value.
- 12) Using oven gloves remove 2 samples after 1hr +/- 10mins, and place in the desiccator for ~30mins until cool, record the time the samples were removed and place in the desiccator.
- 13) Measure the mass of the cooled samples to 4 d.p. record the sample mass to 4 d.p. and the corresponding sample number written on the glass container.
- 14) Repeat steps 11 to 12 at the 2hr +/- 10mins and 6hr +/- 10mins time point
- 15) Determine the % Loss on Drying using the following equation:

$$\%LOD = 100 \times \frac{\text{Total Mass Pre Drying (g)} - \text{Total Mass Post Drying(g)}}{\text{Total Mass Pre Drying (g)} - \text{Glass Container (g)}}$$

- 16) Report the average for each time point and a group average for all 6 time points.

Egg waste sample description	Sample number	Glass containers mass / g (4dp)	Pre Dry Sample mass / g (4dp) 2.0000 to 2.1000g	Incubation duration @ 100°C	Incubation temperature ~100°C	Post Dry Sample mass / g (4dp) 2.0000 to 2.1000	% <i>LOD</i>	Reported Value (mean)
	1							
	2							
	3							
	4							
	5							
	6							
	Group							
	1							
	2							
	3							
	4							
	5							
	6							
	Group							

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Engineering