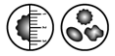


Assessing Damage in Barrier Packaging using the Morphologi G3



Introduction

Barrier packaging is often used to protect products from moisture, humidity, gasses, UV light, odours or temperature. Typically such packaging consists of one or more laminated layers of polymer and/or metallic foil depending upon the desired barrier functionality. Damage to one or more of these layers may lead to quality issues for the product in terms of its freshness or even its safety especially in industries such as pharmaceuticals or food.

Packaging may become damaged if it is punctured or scratched which could be caused as a result from rubbing on the product itself.

Analyzing packaging to identify

damage and wear in a repeatable way could help when selecting the most appropriate packaging for a particular product.

Experimental

A 120 x 90 mm piece of a pharmaceutical barrier packaging was analyzed using the Morphologi G3. It was scanned using the 2.5X magnification and images where light penetrated the pack were recorded.

Result

An X position vs Y position scattergram plot of the analyzed packaging shows the location of the damage (Figure 1). One region is highlighted and images of the damage in that region are shown. A

composite image of the whole measurement is recorded and is useful to help distinguish the type of damage. For the highlighted region the damage appears to be from the product rubbing on the packaging causing a 'fishbone' type damage pattern. Since the location of the damage is known it can be related to the orientation of the product and the cause of the damage can be investigated.

Conclusion

Analyzing the position and size of damage to barrier packaging using the Morphologi G3 may allow the cause of any damage to be established and monitored in future.

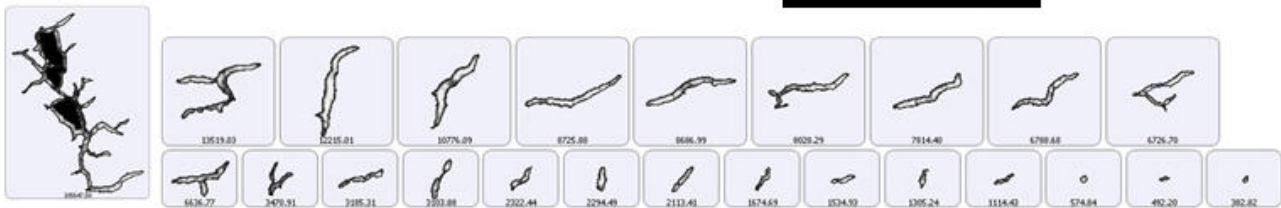
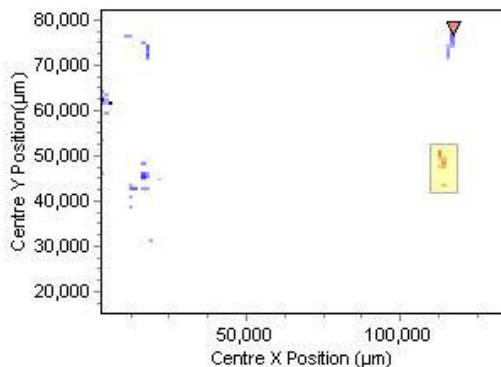
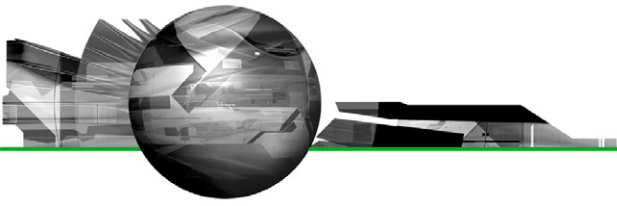


Figure 1: a) X position vs Y position Scattergram showing regions of damage, b) images of the damage and c) the composite image from the highlighted region of the barrier packaging foil.



Application Communication

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