Rhopoint ID Application Notes

BLISTER PACKAGING

Overview

Blister Packaging, a versatile pre-formed plastic packaging material, is used in a number of different industries including consumer goods, electronics, and pharmaceuticals.

A thermo forming process is used to create a cavity or pocket made from a formable transparent plastic web, the size and shape of which is determined by the product for which it is required. This cavity or pocket is typically heat sealed onto an adhesive coated cardboard or foil to trap the contents in place underneath creating a typical blister pack.

There are many types and variations of blister packs that are used, selected according to the product requirements. Some types like face seal blisters incorporate a flanged blister to surround the product, which is heat sealed onto piece of cardboard, the seal therefore is only on the flange while the rest of the cardboard stays uncovered (usually printed).

Others like the clamshell blister pack incorporates the blister in a hinged two half container that opens and closes, due to its robustness it is therefore suitable for heavy products.

Whichever type of blister packaging is used, clear undistorted visibility of the contents is essential, not only from and aesthetic point of view of the product underneath, but in pharmaceutical applications critical to allow the pharmacist to visually check markings on the individual doses of medication.

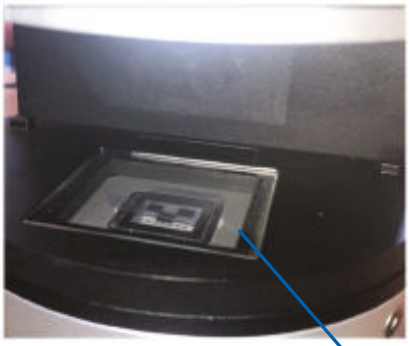
The thermo forming method used to create the cavity is therefore a critical stage in the process as there are several factors that can influence the optical quality of the blister. Material selection, forming temperature and mould condition all need to be correctly controlled to prevent substandard end products being produced.

Due to the complex shape of this type of packaging, visual quality checks of the blister windows have mostly been used as it has been impossible to perform measurements using traditional sphere-based transmission hazemeters. Thanks to its innovative design, the Rhopoint ID overcomes this issue providing a powerful measurement solution for quality control.

OTHER APPLICATION NOTES:
- Surface roughness and bulk scatter
- Taber abrasion
- PET bottles
- Distance haze
- Clarifying additives

PROCESS Example – Evaluating high clarity blister packs

STEP 1: A manufacturer of pharmaceutical blister pack materials supplied five samples from their different worldwide manufacturing locations for analysis. The manufacturer was concerned about the wide variation of visual quality of materials from each location and issues that could be caused due to variations in optical clarity.



Blister Material

STEP 2: The samples were mounted onto the surface roughness and small parts ASTM (8mm) adaptor on the measurement graticule to obtain results compatible with ASTM D1003.

The complex shape of the blister material did not present any problems during measurement as there was sufficient coverage of the material over the measurement graticule of the Rhopoint ID.

STEP 3: Each sample was measured 4 times over the surface area using Rhopoint ID-L to obtain results for Sharpness (S) and Haze (HASTM).

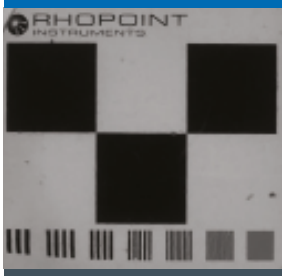
Example – Blister Packs

Measurement Results

A total time of 20mins was taken to measure all samples (4 times x 5 samples – 20 measurements) each of which were manually manipulated during measurement.

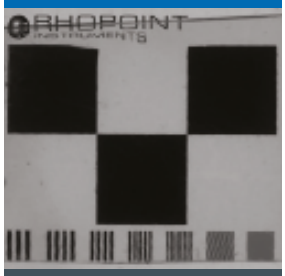
Using the Rhopoint ID-L software the measurement data and images were then analysed to identify changes in optical quality. Average results were calculated and used for the purpose of this report.

SAMPLE 1
CONTROL 1



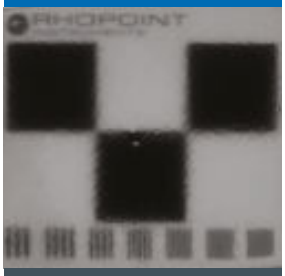
Sharpness: 83.72
Haze: 5.03

SAMPLE 2
CONTROL 2



Sharpness: 83.96
Haze: 4.58

SAMPLE 3
LOCATION A



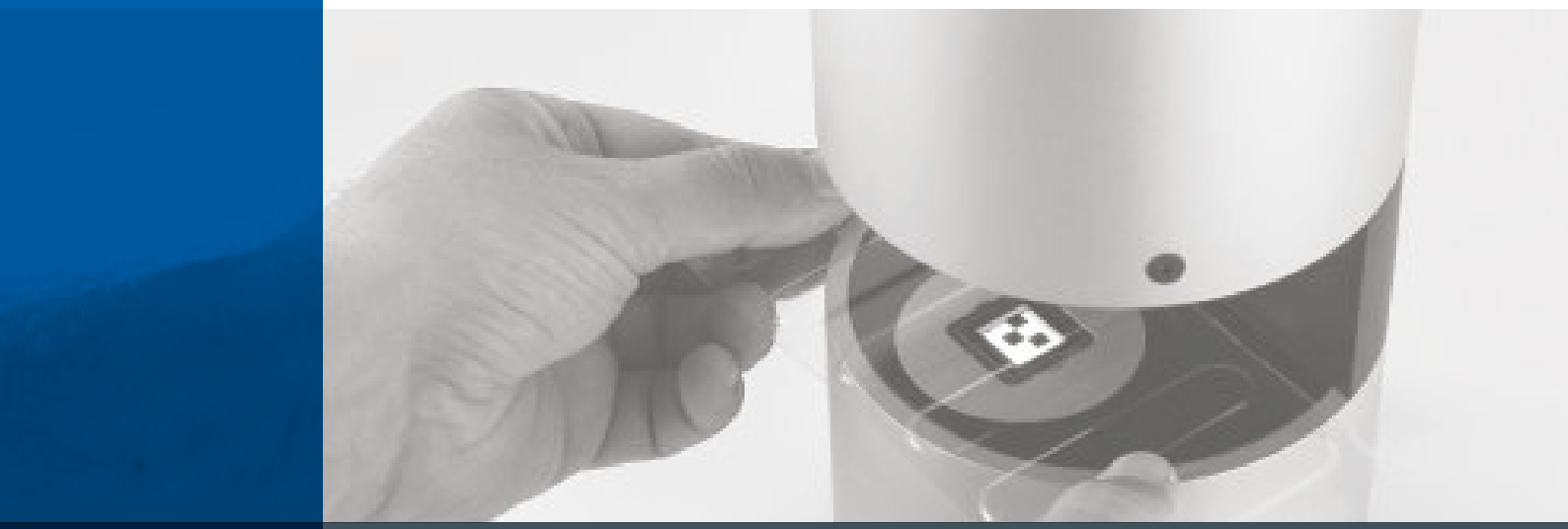
Sharpness: 7.66
Haze: 27.60

SAMPLE 4
LOCATION B

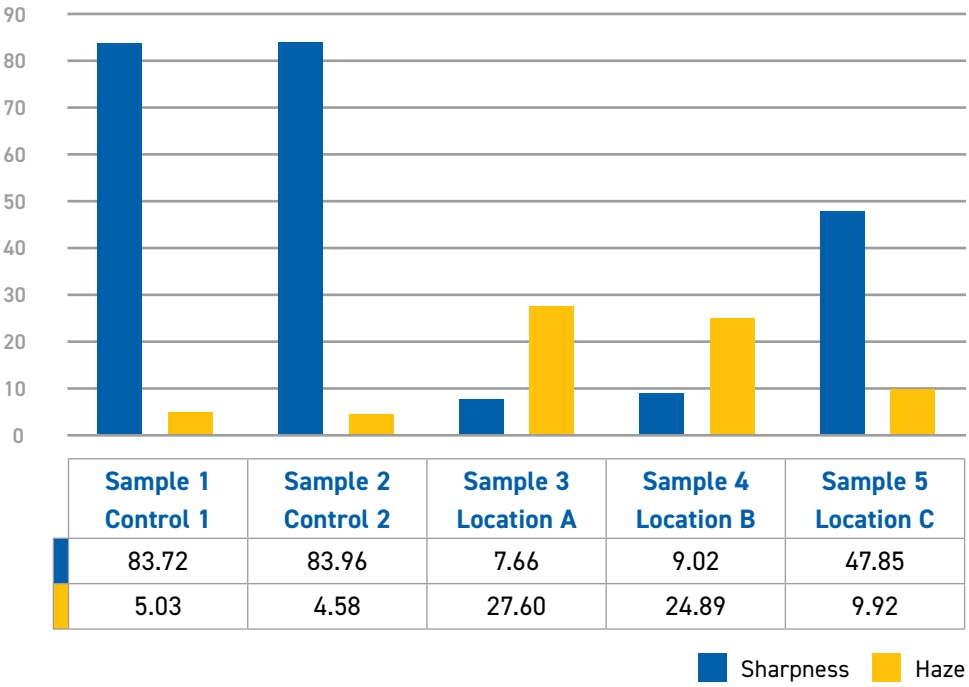
Sharpness: 9.02
Haze: 24.8925

SAMPLE 5
LOCATION C

Sharpness: 47.86
Haze: 9.915



Example – Blister Packs



	Sample 1 Control 1	Sample 2 Control 2	Sample 3 Location A	Sample 4 Location B	Sample 5 Location C
Sharpness	83.72	83.96	7.66	9.02	47.85
Haze	5.03	4.58	27.60	24.89	9.92

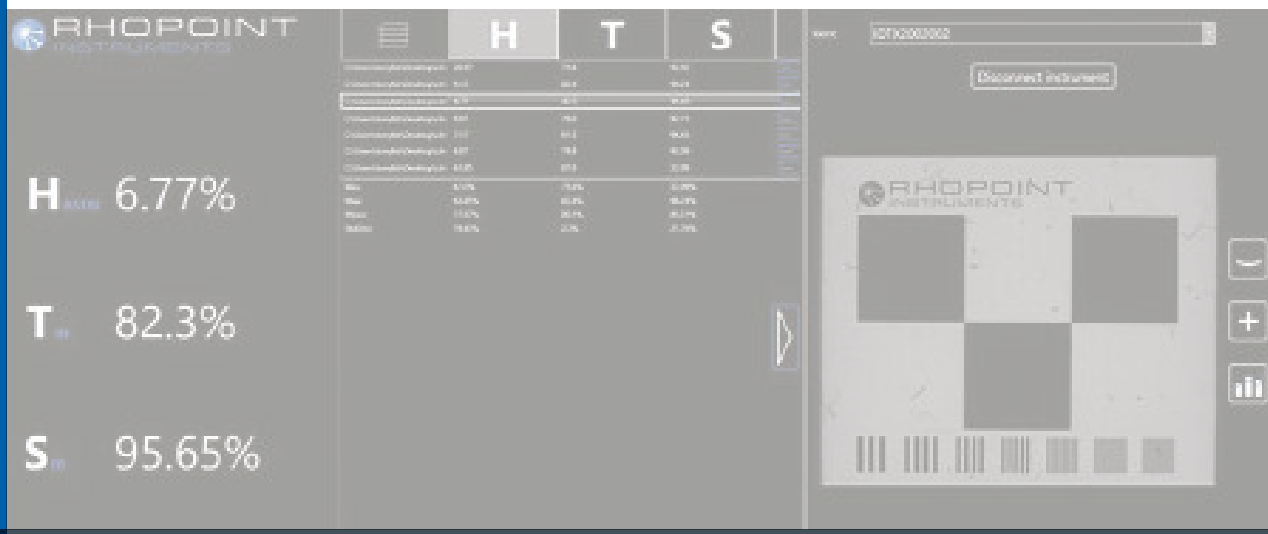
Observations of results

Analysing the results, the variation of Haze and Sharpness across the samples could be observed.

Looking in detail at the images for Samples 3 – 5 there appeared to be a texture present on the surface causing a distortion (when viewed at the point where the black and white areas of the measurement graticule meet). This texturing appears higher on Samples 3 & 4 (resulting in a higher haze and lower sharpness) due to the smaller size of the texture whilst on Sample 5, due to the texturing being larger, the haze is lower and sharpness higher.

The ability to obtain numeric and image data from the Rhopoint ID allows visual confirmation of the data.

As previously mentioned the measurement of these samples, due to their shape and size, would have been impossible using a traditional hazemeter.



Features of the Rhopoint ID

No moving parts

Eliminates risk of mechanical failure

Stand-alone instrument

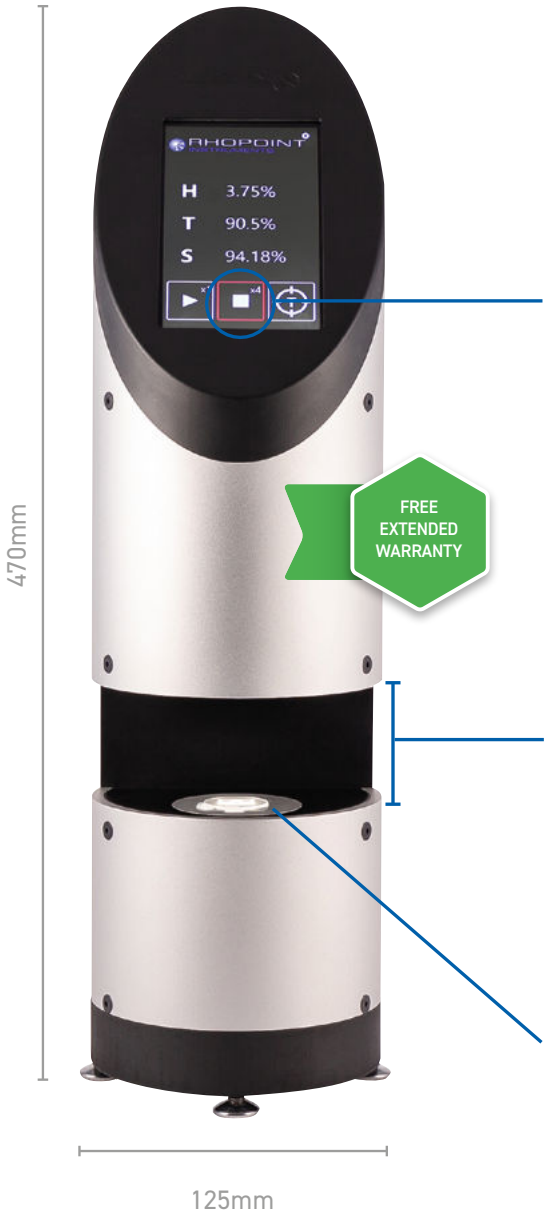
Small footprint reduces space required in laboratory

Lightweight

Easy to move in the laboratory or production line

Resistant and durable

Made from durable, recyclable materials



Touch screen

Single measurement time of 2 seconds to measure ALL parameters (up to 15 seconds on a comparable sphere instrument)

FREE EXTENDED WARRANTY

Large mounting area

Minimal sample preparation required possible to measure non flat samples without bending or deforming.

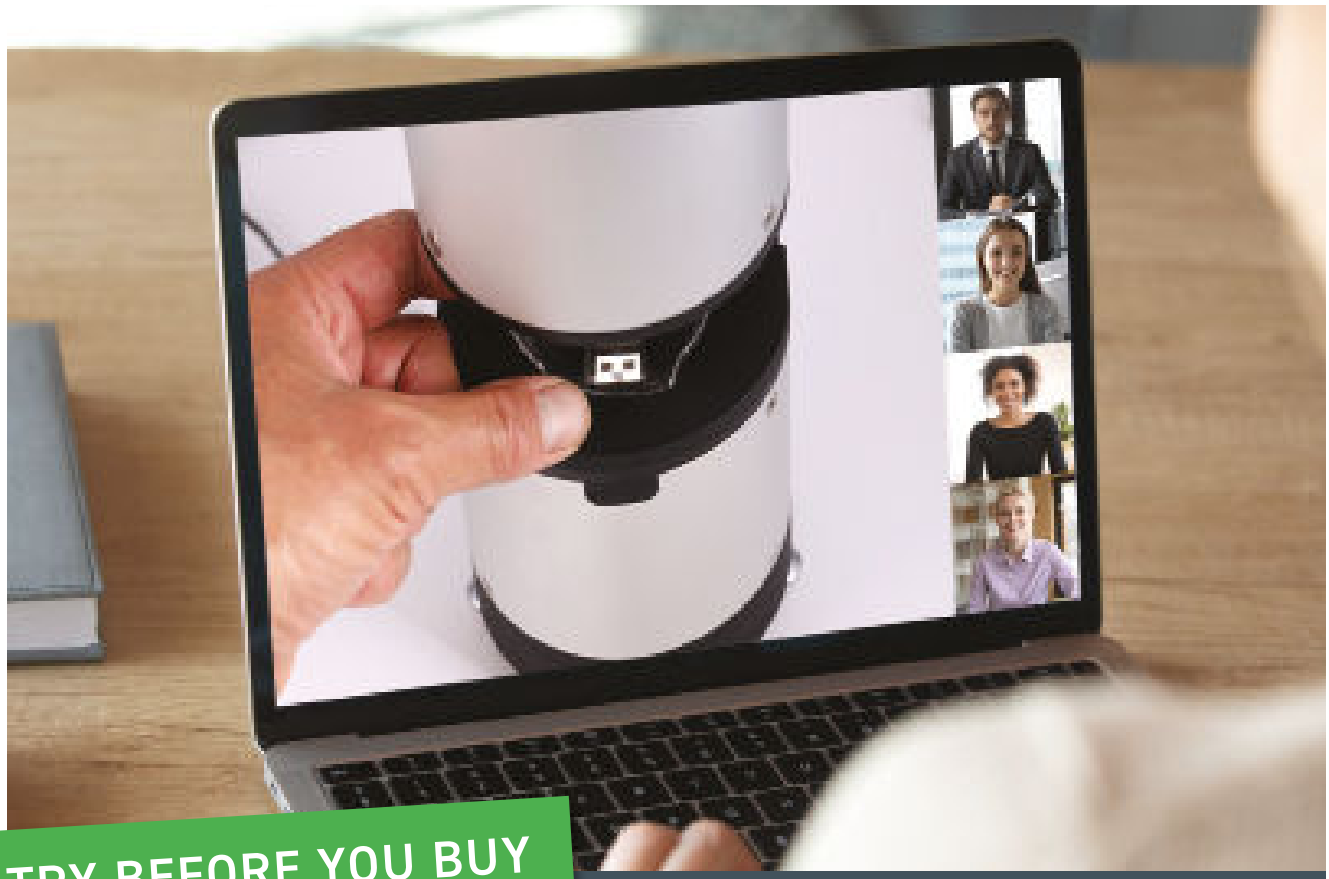
Fully sealed optics

Ideal for measuring liquid samples and solid materials impervious to damage through accidental spillage

KEY FEATURES
✓ Measurement of complex shaped samples
✓ Measurement of Haze, Transmission and Optical Sharpness.
✓ Fast measurement enabling multiple data points to be captured over sample area
✓ Captured images provide confirmation of variation in optical quality
✓ Rhopoint ID-L software allows comparison of sample data and images
✓ Impossible previously using traditional sphere- based measurement systems.
✓ Sample movement between measurement ports not required.
✓ Significant reduction in time taken to measure each sample
✓ Allows identification of potential issues in manufacturing process
✓ Easily compare multiple sample measurements on screen

FULL PRODUCT DETAILS

VIEW DATA SHEET



TRY BEFORE YOU BUY

We offer two options for you to try out the Rhopoint ID before buying.

1. **Online demonstration:** Online presentation of the Rhopoint ID with your samples measured LIVE on Zoom, TEAMS or Skype. Includes consultation with an application specialist.

2. **Factory sample testing:** Send in samples of your material for testing and receive a comprehensive test report.

ARRANGE A DEMO

Ready to receive a quote? Click here

Certificate No. FS 695372
BS EN ISO 9001:2015

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