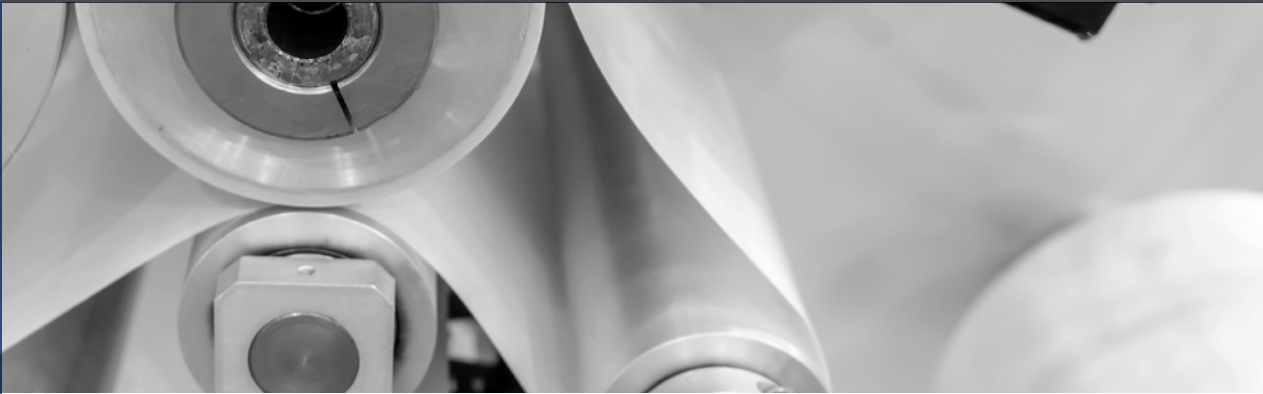


Rhopoint ID Application Notes

ORANGE PEEL IN FILM



Overview

Waviness is an optical effect caused by large structures (0.1-2mm) on the surface of a material. If the structure is homogeneous it is often described as orange peel - the surface resembles the peel of an orange.

If the effect is anisotropic, visible lines can often be seen when looking through the material.

Unlike haze, these larger structures can cause dynamic distortion when the film is moved over a target image/object which has straight edges - the edges appear to distort and wave as the material is moved. To ensure consistent quality of the finished product, the accurate control of operating parameters must be ensured. Should problems occur it is essential they are identified quickly to prevent wastage.

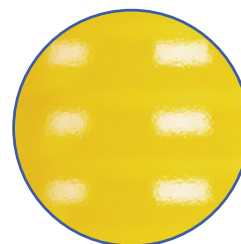
Typical problems can include:

- Orange peel and texturing
- Mould lines or marks
- Contamination
- Haze caused by surface roughness and bulk scatter

Using the Rhopoint ID it is possible to identify these problems quickly and effectively in order to correct in-process failures.



Low orange peel



High orange peel

OTHER APPLICATION NOTES:

- Surface roughness and bulk scatter
- Distance haze
- Abraded samples
- PET bottles
- Agricultural film
- Blister packaging
- Clarifying agents

OVERVIEW

- Customer supplied 8 samples of BOPP Packaging film.
- 4 were classified as **OK** – no visible waviness present.
- 4 were classified as **Not OK** – waviness could be visibly observed.
- Customer required a method of quickly QC testing the films before use, samples were very thin.



OK – no visible waviness present



Not OK – waviness could be visibly observed



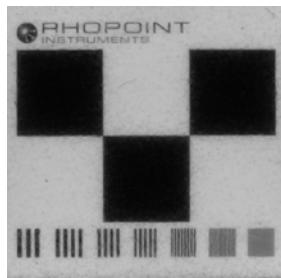
STEP 1: Place each film on the ASTM measurement platen and clamp using a magnetised spacer on Rhopoint ID.



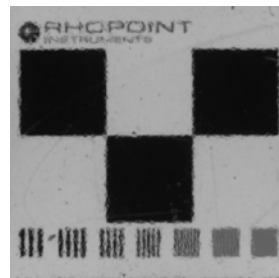
STEP 2: Measure each sample once. Download results and analyse

The images and data that follow were taken directly from the Rhopoint ID. Being a camera-based system it has the unique ability to provide detailed images of the measured sample that are very useful to detect problems in the quality of the material.

Image number	Distance	H	S	T	DT	TT	W	C	H_H	H_V	S_H	S_V	W_H	W_V	C_H	C_V
Image_0		4.46	89.18	88.7	0.6	89.3	4.7	97.5	4.35	4.59	89.26	89.1	2.36	7.12	97.52	97.48
Image_1		4.01	89.37	89.1	0.5	89.6	5.1	97.53	4.29	3.62	87.95	90.78	4.57	5.54	97.21	97.85
Image_2		4.39	88.3	89.2	0.6	89.8	5	97.29	4.76	3.87	88.53	88.07	3.51	6.45	97.34	97.23
Image_3		4.37	89.97	89.1	0.6	89.6	3.7	97.68	4.73	3.87	90.44	89.51	3.24	4.15	97.79	97.57
Image_4		4.02	82.37	89.1	0.5	89.7	13.3	95.77	4.64	3.19	77.11	87.64	16.62	10.03	94.41	97.13
Image_5		3.5	85.09	88.8	0.5	89.3	10.7	96.5	3.79	3.1	83.33	86.84	10.2	11.26	96.06	96.93
Image_6		3.98	81.01	89.3	0.5	89.8	13.4	95.46	4.09	3.78	84.11	77.9	9.71	17.01	96.27	94.64
Image_7		3.74	82.03	89.5	0.5	90	17	95.75	3.99	3.41	83.2	80.86	12.45	21.6	96.05	95.45



OK sample



Not OK sample

Waviness W is displayed in Vertical (W_V) and Horizontal (W_H) directions.

The values for waviness for the OK samples were low confirming that little or no orange peel was present on the surface.

However, for the Not OK samples the Waviness values were high confirming the presence of orange peel. Also the values for W_H and W_V were not similar indicating there were in process directionality issues in the way the orange peel was being manufactured.

The measurement results confirmed the visual evaluation of the samples. Rhopoint ID was able to distinguish between good and bad samples in terms of Orange Peel present on the surface from the Waviness values.

RHOPOINT INSTRUMENTS

H_{ASTM} 6.34%

S 74.9%

T 91%

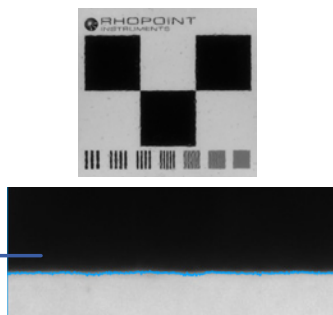
DT 0.8%

TT 91.8%

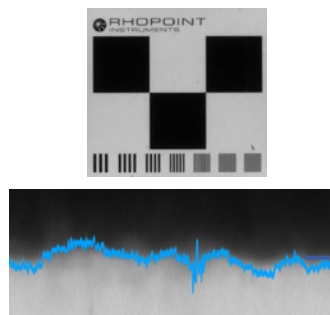
W 10.7%

C 93.8%

▶ x1 🔍



Example image of edge without deformation



Example image of edge with deformation

RHOPOINT INSTRUMENTS

H_{ASTM} 5.85%

S 83.01%

T 90%

DT 0.8%

TT 90.8%

W 1.7%

C 96%

▶ x1 🔍

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 3D formed shapes
- ✓ Measurement of anisotropy, defects and surface related texture
- ✓ Simple sample mounting. Fast, accurate and repeatable measurement
- ✓ Allows identification of in-process failures during manufacture
- ✓ Minimal sample preparation required, no need to bend or deform the sample for measurement
- ✓ Measured data and images allow visual confirmation of potential surface issues
- ✓ Extensive information available for detection and analysis

[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

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