



Davinor *GonioGauge GG1*



Davinor *GonioGauge GG1* is new contact angle meter a.k.a. goniometer for measuring surface properties of different materials and especially plastic films. Contact angle measurements are widely used test method for studying and inspecting surface energies, surface treatments and wettability of materials.

With *GonioGauge* contact angle measurements reach completely new level of accuracy and reliably. And with *GonioGauge's* professional analysing software the measured data can be turned into true valuable information.

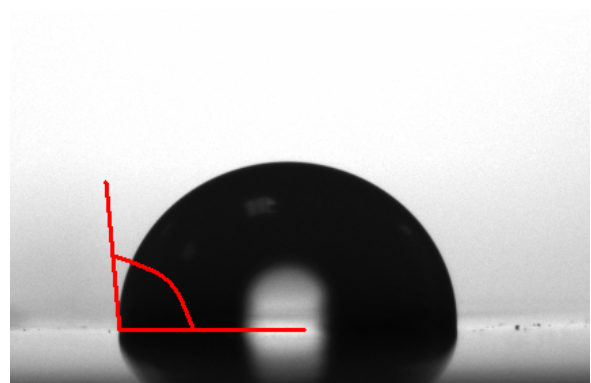
***GonioGauge* is new instrument in Davinor product line. It was designed especially plastic films in mind and for easy quantification of Wetting Tension properties of films as described in ASTM D 5946-04 standard.**

What is *GonioGauge* and what it does?

Davinor *GonioGauge* is a modern instrument for contact angle measurements. Contact angle is formed when a droplet is inserted on a substrate.

Contact angle is the angle between substrate surface and tangential line drawn to the droplet surface at point where the substrate, surrounding atmosphere and the droplet meet (the three-phase point). This angle is shown in next picture.

As the interaction between droplet and substrate gets stronger the measured contact angle gets smaller.



Picture 1, contact angle of droplet

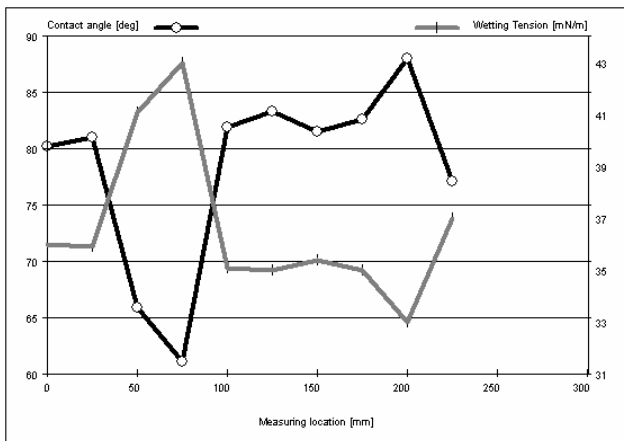


Instruments used for this type of measurements are typically called as contact angle meters and *GonioGauge* also belongs to this group. *GonioGauge* is however using latest technology and the most sophisticated software algorithms and therefore is superior compared to traditional contact angle meters.

How does it work?

The measurement starts by placing a substrate, a piece of plastic film for example, on instruments measuring plane. This measuring plane has a vacuum inlet to hold sample tightly in place. Next a precision dispenser places a small drop of test liquid on substrate. When the droplet is formed on the substrate a snapshot is taken by digital camera. From this picture software calculates contact angles. The whole sequence takes a few seconds.

Measured angles are automatically stored into database and they can be easily used for determining wetting tension etc. with versatile reporting and analysing options.



Picture 2, Wetting Tension report

Different liquids can be used in these measurements. Type of liquid is important factor since they interact very differently with various materials.

What can you do with GonioGauge?

Contact angle measurements are well known method to study surface properties of different

materials. Measured angles give information about forces acting between substrate and droplet and about surface free energy of substrate.

One of the most important uses is measuring the level and distribution of corona-treatment on PE, PS and PP films. With *GonioGauge* you can easily and accurately measure complete treatment profile telling you how treatment is distributed and how strong it's in a given point. Insufficient, missing or uneven treatment is revealed and corrections can be made using this accurate numerical measuring data.

Measurement of wetting tension of corona-treated polymer films is a standardized procedure and has ASTM designation D 5946-04, *Standard Test Method for Corona-Treated Polymer Films Using Water Contact Angle Measurements*. In this ASTM standard both the test method and needed apparatus are described. One of the most notable features of this method is that you can perform it using pure water instead of expensive and possibly hazardous chemicals used in other methods used to get the same information. Davinor *GonioGauge* is just the instrument needed for making this test exactly like described in the ASTM standard.

Also other type of measurements can be made. For example dynamical behaviour like spreading or absorption of droplet can be studied with *GonioGauge*'s high-speed camera.

Why is GonioGauge worth buying?

Using *GonioGauge* instead of any other method to study Wetting Tension and Corona-Treatment levels gives you benefits in many ways. First of all you make measurements fast and accurately with minimal user dependency. Software algorithms are used for determining angles from captured pictures. This leads directly into systematic and repeatable results eliminating deviations due to operators. Also, exact numerical data stored and represented in systematic way is important element in modern quality control process, something that hassling with different dyne pens and notepads can't give you.



Specification of Davinor *GonioGauge GG1*

GENERAL DESCRIPTION Goniometer for measuring contact angles of liquids on solids. Basic surface characterization can be done safely, fast and accurate by using water as a liquid. FireWire interface guarantees easy installation.

TECHNICAL SPECIFICATIONS

Measuring range	0...180 degrees.
Inaccuracy	+/- 0.1 degree.
Calculation method	Automatic (or manual) base-line detection, auto-trigger mode to capture images automatically after dispensing, curve fitting based on Young-Laplace equation, completely automatic and user independent calculation that calculates separate contact angles for each side and a mean value.
Frame interval	0.1 s, up to 1 000 images.
Camera	FireWire (IEEE 1394) true digital video camera, 50 mm optics.
Lightning	LED based background illumination.
Dispenser syringe	Manual 1 ml precision syringe.
Reporting	Automatic contact angle reports. Customised wetting tension and surface energy reports can be printed using freely editable conversion tables.

For more information please contact us

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