GROUP'S LABORATORIES

ICOPACK

EGYWRAP

COPACK كوباك

Chairman's Message

Dear Sirs,

We have started our business with the ICOPACK Company in 1990 as pioneer in the field of BOPP films production in Egypt and now in year 2012, we became a group of three companies "ICopack, Egywrap and Copack" with 4 lines. Our group has moved through numerous stages from its beginning, growth, and expansion. Today, the Group is expanding into global markets. With a clear vision and with a dynamic & well trained team and professionals of management, the Group has managed to have a tough and firm ground in this business in Egypt and in the Middle East as well as Europe and all over the world.

As a market oriented, the group is being focused on total customers' satisfaction, guided by quality, creative solutions, and never ending search for better ways to serve our clients.

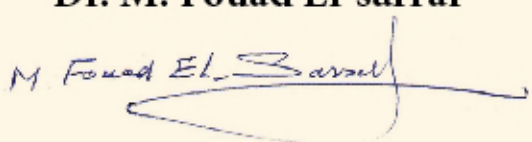
We are devoted to innovation and continuous improvement throughout our customer service division with a highly qualified technicians and advanced technologies in line with the Quality Control, Research & Development and the Production teams.

In our way to success, we have been always competent to face the prime challenge of this millennium which, in my opinion, is characterized by globalization and customer orientation. Businesses all over the world are now ruled by innovation and creation to meet the customers' expectations.

We are and we will always be pleased to be a trustful business partner performing a valuable contribution to empower this field of business and to the society generating real added value to our customers.

Signature

Dr. M. Fouad El-sarraf



INTRODUCTION

We started our business in 1990 as a pioneer in the field of production of bi-oriented polypropylene films "BOPP" in Egypt and the Middle East. Now, we rank among the outstanding producers of BOPP films with 3 lines 3 layers and 1 line 5 layers, with a combined production capacity of 52000 tons/year.

The group consists of 3 companies Icopack , Egywrap & Copack that are producing full range of BOPP films including Transparent, Milky white, Pearlized, Metalized, Fast, adhesive Tape base, Tobacco over wrapping, special films for Rose, Plain and MATT film with different thicknesses.

All our grades are exposed to highest level of quality control and our Films comply with the appropriate food contact regulations in most countries throughout the world.

The *LABORATORIES* are constantly monitoring all production operations and practices in an effort to provide the best value for the customer.

- **Raw materials** (melt flow index and melt volume index),
- **Intermediate products** and final products:
- **Mechanical properties** such as tensile strength, elongation at break, modulus of elasticity & coefficient of friction.
- **Optical properties** such as haze, gloss and optical density
- **Thermal properties** such as shrinkage, heat-seal strength for corresponding films) and low seal initiation temperature (LSIT)

Tests are carried out through several equipments
(i.e. hazemeters, glossmeters and heat-sealing machines).
All equipment receives periodic testing, calibration and maintenance operations.

TESTS TYPE

Our Laboratories regularly perform tests on thermoplastic resins and films including the following tests:

1- Coefficient of Friction ASTM D1894.
2- Tensile Testing of Thin Plastic Sheeting ASTM D882 .
3- Haze and Luminous Transmittance of Transparent Plastics ASTM D1003 .
4- Specular Gloss ASTM D2457 .
5- Dimensional Stability ASTM D1204 .
6- Melt Flow Rate (MFR) ASTM D1238 .
7- Water Vapor transmission Rate WVTR ASTM F-1249 .
8- Oxygen Transmission Rate OTR ASTM D-3985 .

Arab Republic of Egypt

Egyptian Accreditation Council (EGAC)

Certifies that

Central Laboratory

Cairo for Cartoon Production - COPACK

6th October City, Industrial Area No 3, Block

Giza - Egypt

Has been accredited by EGAC in compliance with

ISO/IEC 17025:2005

in the field of physical & mechanical testing of p

The scope of accreditation is described in the attached sch

The accreditation is valid for the perio

From: September 14, 2006 To:

Subject to continued compliance to the above

and the requirements of EGAC

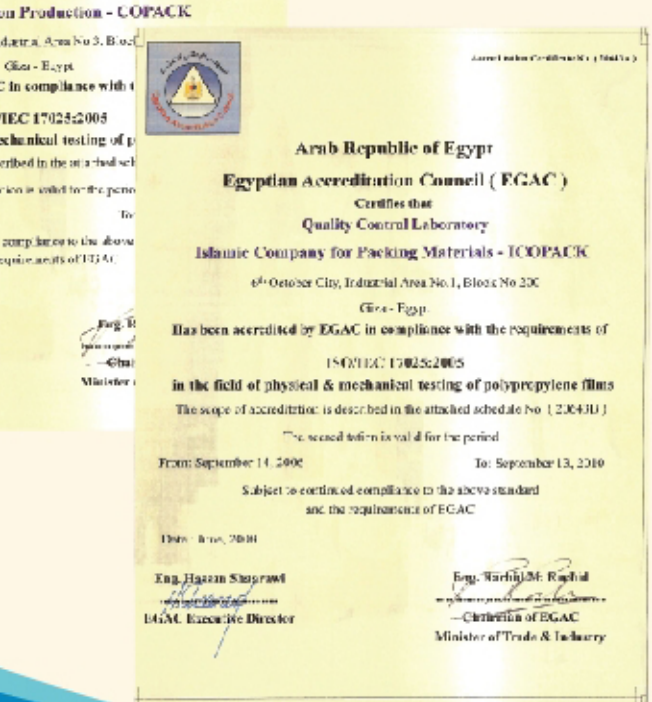
Date : June,2008

Eng. Hassan Shaarawi

EGAC Executive Director

Eng. H

Minister



Arab Republic of Egypt

Egyptian Accreditation Council (EGAC)

Certifies that

Quality Control Laboratory

Islamic Company for Packing Materials - ICOPACK

6th October City, Industrial Area No.1, Block No 20C

Giza - Egypt

Has been accredited by EGAC in compliance with the requirements of

ISO/IEC 17025:2005

in the field of physical & mechanical testing of polypropylene films

The scope of accreditation is described in the attached schedule No (220430)

The accreditation is valid for the period

From: September 14, 2006 To: September 13, 2010

Subject to continued compliance to the above standard

and the requirements of EGAC

Date : June, 2010

Eng. Hassan Shaarawi

EGAC Executive Director

Eng. Wathik M. Rashid

Chairman of EGAC

Minister of Trade & Industry

Coefficient of Friction ASTM D1894

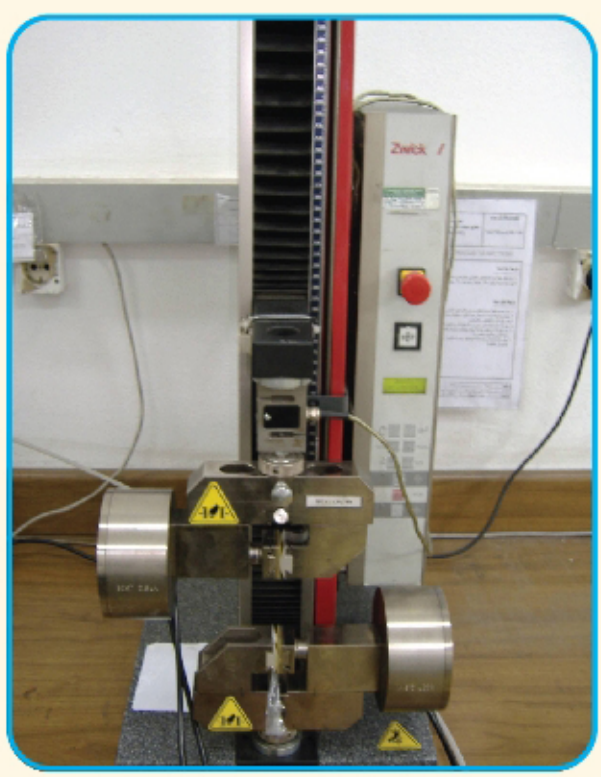
Thwing-Albert friction tester

Scope:
The test is used to determine the kinetic (moving) and static (starting) resistance of one surface being dragged across another.

Data:
Both static and kinetic coefficient of friction can be calculated. The static coefficient of friction is equal to the initial force scale reading divided by the sled weight. The kinetic coefficient of friction is equal to the average force reading obtained during uniform sliding of the surfaces divided by the sled weight. All measurements are in grams.

Sample Size: Length 25cm x width 13cm.

Tensile Testing of Thin Plastic Sheeting ASTM D882



Scope:
Tensile tests measure the force required to break a specimen and the extent to which the specimen stretches or elongates to that breaking point. Tensile tests produce a stress-strain diagram, which is used to determine tensile modulus.

Data:
The following calculations can be made from tensile test results: tensile strength (at yield and at break), tensile modulus, strain, elongation and % elongation at yield & elongation and percent elongation at break.

Sample Size: Length 20cm x width 15cm.

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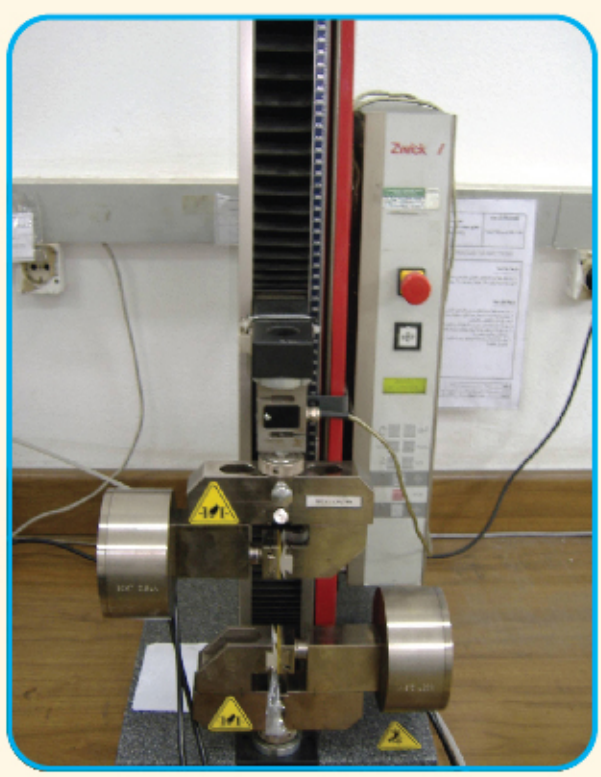

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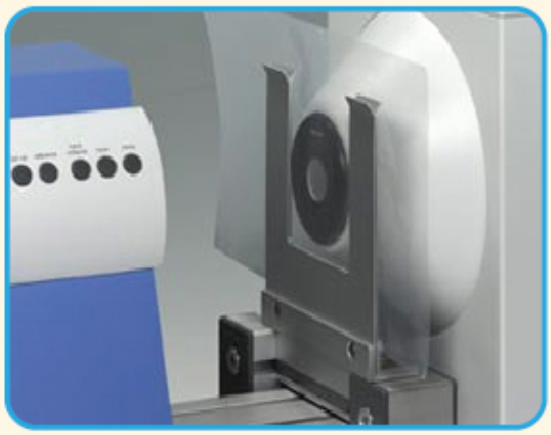
Haze & Luminous Transmittance of Transparent Plastics ASTM D1003



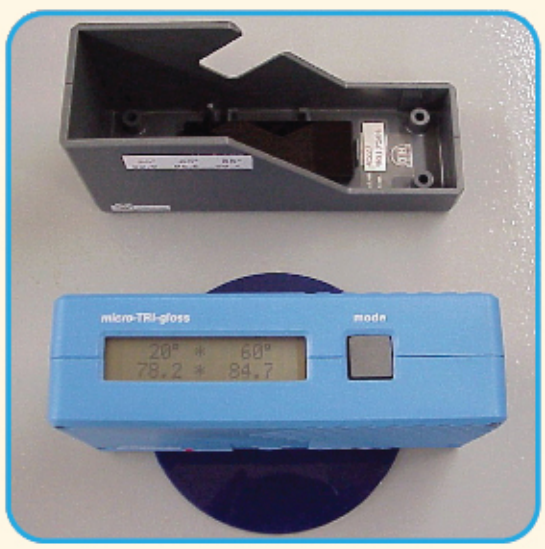
Scope:
Haze is the scattering of light as it passes through a transparent material, resulting in poor visibility and/or glare. Luminous transmittance measures the amount of light that passes through a sample. Thus haze and transmission measurements can be useful in product development, process development, and end use performance testing. BYK Gardner Hazemeter

Data:
Haze (%), Total Luminous Transmittance (%), Clarity (%)

Sample Size: Length 15cm x width 15cm.

Specular Gloss ASTM D2457

Scope:
Specular Gloss is a measure of the light reflected by the surface of a material. Gloss can be inherent in the material, a result of the molding process, or a result of surface texture. Gloss can also be affected by environmental factors such as weathering or surface abrasion. Thus Gloss can be useful in product development, process development, and end use performance testing. BYK Gardner micro Glossmeter



Data: 45° Gloss (%)

Sample Size: Length 4.5cm x width 14.5cm

Dimensional Stability ASTM D1204

Scope:
Dimensional Stability is a measurement of the linear dimensional change resulting from exposure to temperature during definite time. The test gives an indication of lot-to-lot uniformity with regards to internal stress introduced during processing.

Data:
% linear change is equal to final length minus original length divided by original length multiplied by 100. % change=(final length-original length) / original lengthx100

Sample Size: typical sample is 10x10cm

Melt Flow Rate (MFR) ASTM D1238

Scope:
Melt Flow Rate measures the rate of extrusion of thermoplastics through an orifice at a prescribed temperature & load. It provides a means of measuring flow of a melted material which can be used to differentiate grades as with polyethylene, or determine the extent of degradation of the plastic as a result of molding.

Data:
MFI=(600 x M)/t where t=measured time in seconds & M=weight loading. Melt flow rate values are calculated in g/10 min.

Sample Size : Approx. 7 grams

Water Vapor Transmission Rate Analyzer WVTR ASTM F-1249

Scope:
The test is used for moisture measurement by means of P2O5 for Barrier films.

Data:
Measurement range of 0.02 to 180g/m2/day with masking. Test Temperature Range 5°C to 50°C.Test RH Range 0 to 90% RH.

Sample Size: 50cm2

Oxygen Transmission Analyzer OTR ASTM D-3985

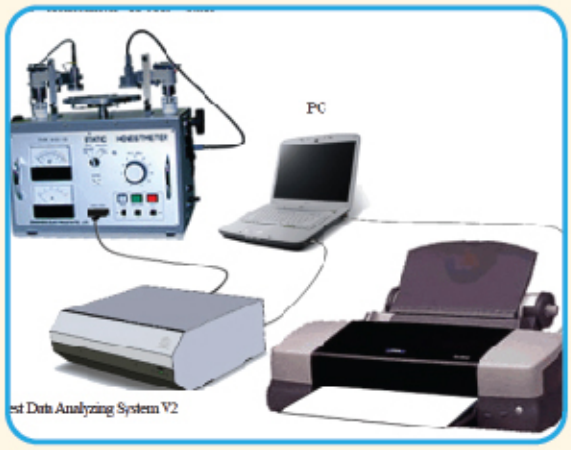
Scope:
The test is used to detect oxygen transmission rates through flat film barriers or package (dry test only) for Packaging Manufacturers, Converters & Food Companies

Test Procedure:
Samples are clamped in a diffusion chamber. Pure oxygen is then introduced into the upper half of the chamber while an oxygen free carrier gas flows through the lower half. Molecules of oxygen diffusing through the film into the lower chamber are conveyed to the sensor by the carrier gas.

Data:
OTR test ranges from 1-99,999 cc/m2/day & test temperature from 15°C to 40°C.

Sample Size: 100cm2

Static Honestmeter H-0110



Scope:
The Static Honestmeter is an instrument for measuring electrostatic attenuation. It is used to electrify a sample by bombarding it with air ions generated through corona discharge and then find the decay curve of the charge on the sample.

Data:
Half decay time for static charge

Sample size: 40 mm x 40 mm, no more than 10 mm high and weigh no more than 29 g.

Easy Dyne Tensiometer K20

Scope:
Easy Dyne Tensiometer is the specialist for quality control to measure surface tension for solutions (treatment solution and density solution) or others.

Data: The force required to pull the platinum ring from the solution

Sample Size: max. sample load 50 g

Optical Densitiometer TBX™

Scope:
The Tobias TBX™ densitometer measures diffuse transmission densities for several applications.

Data:
Optical density is a measure of the light blocking properties of materials and uses a logarithmic scale. Since metallized film only transmits a small portion of the light the use of this scale allows the unit to monitor small changes in the coatings of the film.

Sample Size: 10cm x 10cm

Technical Assistance

Our ***LABORATORIES'*** being focused on total customers' satisfaction guided by quality, creative solutions, and a never ending search for better ways to serve our clients,

We are devoted to innovation and continuous improvement throughout our customer service division with a highly qualified technicians and advanced technologies in line with the Quality Control & Development, Production and Logistic teams.

We are always at your disposal to help you find solutions or to assist with new developments.

The Certifications

We are also accredited ISO9001:2008

We are OHSAS 18001:2007 certified and we are accredited PIRA certificate of compliance for food contact approval from the International Institute of PIRA and they are renewed periodically.

Test Results

As we are an ISO 17025 certified, we can make tests for outside customers with a competitive fee. The fee depends on the type of tests or required analysis. The time to receive the results can take from a day to 3 days.

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