CHILL Processing laboratory for preproduction research and testing

Do you want to expose your final bottlenecks and solve these before you start a full-scale production process? In the CHILL Processing laboratory you are able to simulate your production process on a small scale. The lab functions as a portal to your final production. Our state-of-the-art extrusion, injection moulding and compounding facilities enable you to run a wide variety of tests. This can be done with the help of CHILL researchers and students. If you prefer, you can do the tests yourself!

Chemelot Innovation and Learning Labs

WWW.CHILLABS.NL

NEW CONNECTIONS • NEW SOLUTIONS

Testing

Zwick Material Testing Machine

AllroundLine 20 kN Z020TH Allround-line Table-Top Machine

Nominal force 20kN
Test area (W*H) 440 * 1430 mm
Test speed 0.0005…1000mm/min
Return speed 1500mm/min
Video extrusionmeter

1. Tensile tests on plastics
2. Testing the frictional behaviour of plastic foils

Pendulum Impact Tester HIT 5.5P

Application range and standards

Method	**DIN**	**ISO**	**ASTM**
Charpy	50115	179-1	D 6110
		179-2	
Izod		180	D 256 (notched)
			D 4812 (un-notched)

Notch cutting machine ZN0

The Zwick ZNO notch cutting machine is used to notch plastic specimens in accordance with the standards ASTM D 256, ASTM D 6110, EN ISO 179, EN ISO 180, and EN ISO 8256 (Charpy and Izod tests)

Hardness Tester to Shore analogue

Device	Zwick 3130 (Shore A)	Zwick 3131 (Shore D)
Indentor	Truncated cone	Cone
	Opening angle 35°	Opening angle 30°
Contact force	12.5 N	50 N
Spring force	8.065 N	44.5 N
Range of application	Soft rubber	Hard rubber
	elastomers	acrylic glass
	natural rubber	polystyrene,
	PVC soft	rigid thermo-plasts

Rockwell Hardness Tester ZHR 4150 AK

Type		**ZHR4150AK**
Item number		**389921**
Test method		Rockwell
Load	Pre-load	10 kgf
	Test load	60, 100, 150 kgf
Pre-load		setting with optical and acustic support
Load control		automatic load application, holding and removal
Load application		via spring force
Starting test action		automatically or manually
Holding time		1 - 50 sec
Data calculation		average value R calculation (display + optinally: output to a PC or printer)
Scales		ABCDEFGHKLMPRSV
Max height of specimen		250 mm
Max depth of specimen		150 mm

HDT/Vicat Standard

Vicat test needle
Vicat weight set, 10 & 50 N, according to ISO 306 and ASTM D 1525 (required 1x per station)
HDT test plunger
HDT Weight Set ISO 75-2 flatwise. For specimen size 4 x 10 mm (thickness x width, ± 0.05 mm)
Number of testing stations 3
Temperature range [°C] +20 ... +300

Extrusion Plastometer Mflow:

The Mflow Extrusion Plastometer in its basic version is equipped for MFR testing to Method A and can be expanded for MVR testing to Method B. Tests according to the following Standards are possible: Methods A and B to ISO 1133, ASTM D 1238, ASTM D 3364, JIS K 7210
Test loads 0.325 up to 21.6 kg
Temperature range +50 up to +450 °C

Testing

Halogen Moisture Analyser

HB43-S

This is the instrument for repetitive, routine moisture determination
Temperature range 50-200°C
Minimum sample weight 0,5 g
Maximum sample weight 54 g
Repeatability and reproducibility

Differential scanning calorimetry; thermoanalytical technique in which the difference in heat flow is measured as a function of temperature

DSC12E

Thermally controlled environment
Temperature range -40°C up to 400°C
Heating/cooling rate 1°C/min to 20°C/min
Dynamic and isothermal measurements
Solid samples
N2 atmosphere

Climate chamber

MKF 240 Environmantal simulation chambers

Temperature data without humidity:
Temperature range (°C) -40 - 180
Temperature fluctuation (± K) 0,1 - 0,5
Temperature variation (± K) 0,1 - 1,5
Mean warm-up rate acc. to IEC 60068-3-5 (K/min.) 5,0
Mean cooling rate acc. to IEC 60068-3-5 (K/min.) 5,0
Heat compensation, max. (W) 2800
Climate data:
Temperature range (°C) 10 - 95
Temperature fluctuation (±K) 0,1 - 1,3
Humidity range (% RH) 10 - 98
Humidity fluctuation (± % RH) 2 , 5
Dew point temperature range (°C) 5 – 94

Contact Angle Meter

Attension Optical tensiometers theta

Measurement type:

- Static and dynamic contact angles
- Static and semi-dynamic surface/ interfacial tension
- Surface free energy
- Drop volume interfacial rheology

Applications:

Wettability, Spreading, Absorption, Adsorption, Cleanliness, Surface tension, Interfacial tension, Contact angle, Surface heterogeneity, Interfacial rheology