



Chemie

HSH CHEMIE

MODIFIED CELLULOSE ETHERS

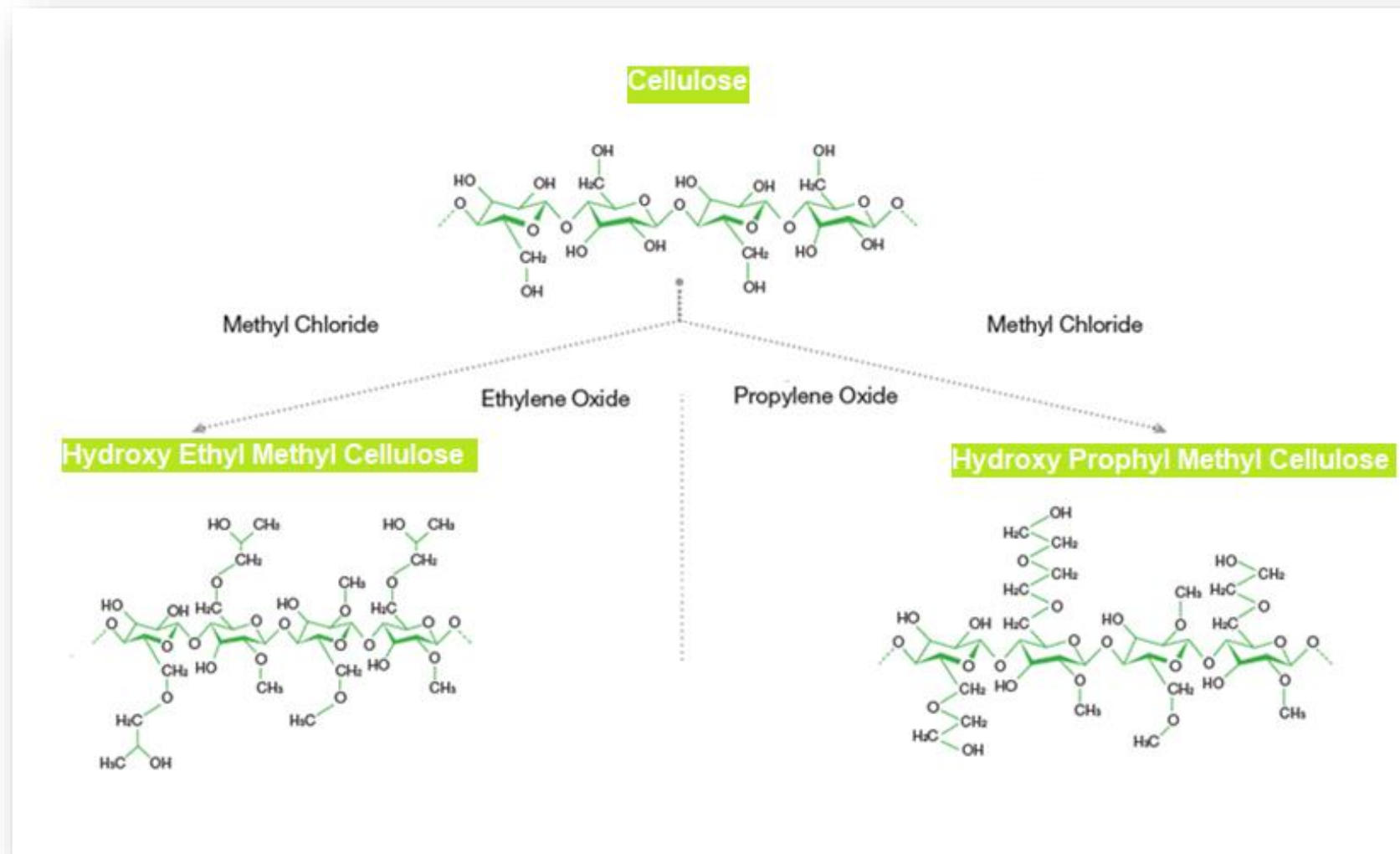
Dominik Krawczyk

Segment Manager Building

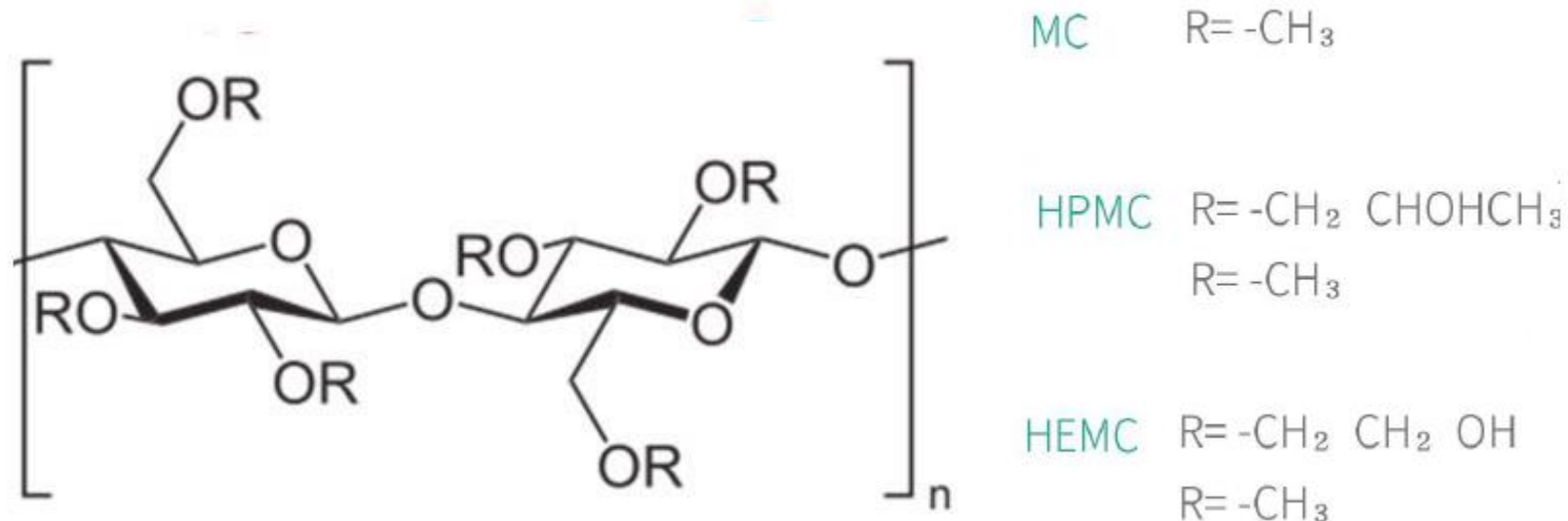
JANUARY 2022



DERIVATES



SUBSTITUTION



DS - DEGREE OF SUBSTITUTION

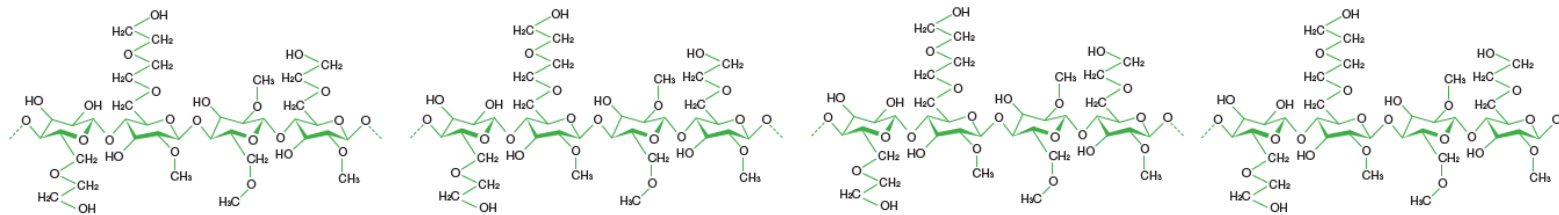
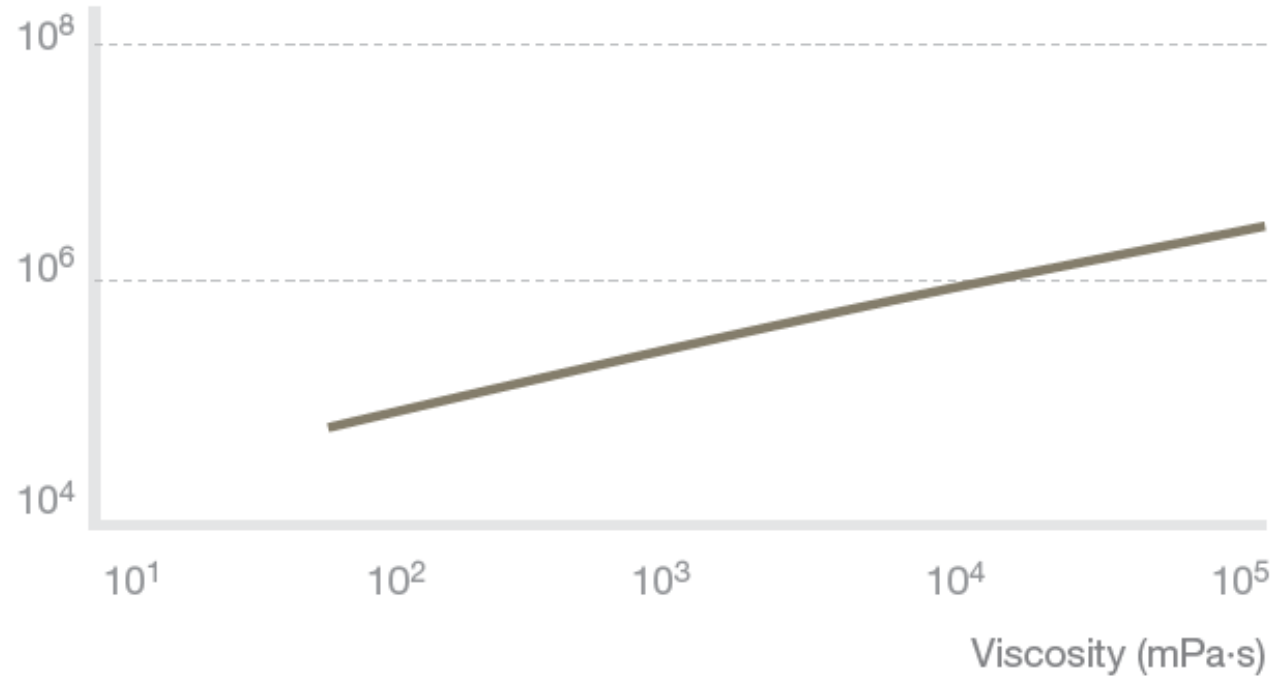
Degree of substitution is the average level of methoxy substitution on the cellulose chain

MS – MOLAR SUBSTITUTION

Molar substitution is the average level of hydroxypropoxy substitution on the cellulose chain

VISCOSITY

Molecular weight (Mn)



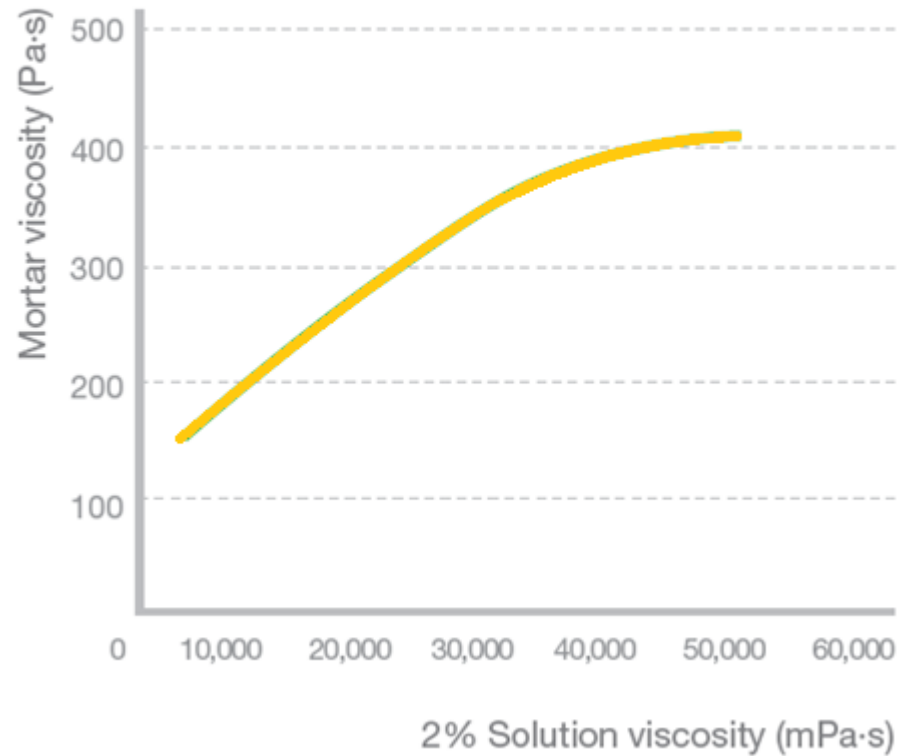
VISCOSITY

| Brookfield | Roto | Hoppler | Ubelode |
|------------|---------------|---------------|----------------|
| 4,000 | 6,000 ~ 6,500 | 6,000 ~ 6,500 | 4,500 ~ 5,500 |
| 8,000 | 10,000 ~ | 6,000 ~ 6,500 | 8,000 ~ 12,000 |
| 15,000 | 18,000 ~ | 15,000 ~ | 18,000 ~ |
| 30,000 | 33,000 ~ | 50,000 ~ | 70,000 ~ |
| 40,000 | 44,000 ~ | 80,000 ~ | 80,000 ~ |
| 50,000 | 60,000 ~ | over 120,000 | - |
| 70,000 | - | - | - |

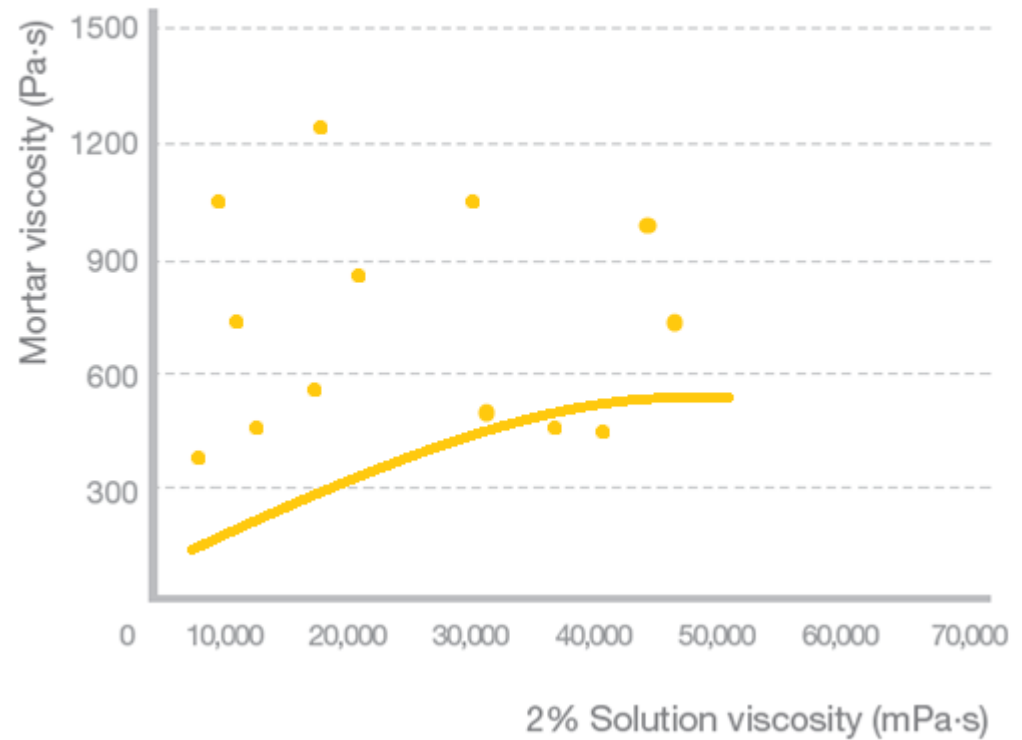
* Viscosity by brookfield might vary depends on the type of device

PURE GRADES VS MODIFIED GRADES

Pure grades



Modified grades



IDEA

CELLOQ®

CELLQ®

CELLQ 45 is a modified, multi-purpose cellulose ether (HydroxyPropyl MethylCellulose) invented for tile cement (CTA) and exterior thermal insulation systems (ETICS). CELLQ 45 provides excellent performance for the combined properties of sag resistance, long open time and outstanding workability.

Cellulose ether CELLQ 45 gives the mortar excellent consistency development, a long open time and easy workability with good sag resistance as well as less stickiness to the metal tools.

Even at higher temperature CELLQ 45 shows very good water retention together with the required strength development.

MAIN APPLICATIONS

- External Thermal Insulation System (ETICS)
- Cement Tile Adhesives (CTA)
- Cement Mortars

CELLQ 45 PERFORMANCE



Chemie

Chemical base:
Viscosity:
Particle size:
Moisture content:

Cellulose ether derivate (HPMC)
Approximately 40.000-55.000 mps
Fine powder
Max 8%

| | |
|----------------------|------|
| Testowana formuacja: | |
| Cement 42,5R | 30% |
| Wapno hydratyzowane | 2% |
| Piasek 0,0-0,5mm | 67% |
| RDP Tg -15°C | 0,8% |
| Zagęstnik | 0,2% |
| Woda | 21% |



ODDZIAŁ SZKŁA I MATERIAŁÓW BUDOWLANYCH W KRAKOWIE

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Kraków 14.02.2020

**Sz. P
Dominik Krawczyk
HSH Chemie Sp. z o.o.
Płowiecka 1,
04-501 Warszawa**

Szanowny Panie,

Bazując na wynikach badań uzyskanych w przeprowadzonych w ramach zlecenia 38/3L008G20 badań przyczepności potwierdzamy, iż trzy wyroby dostarczone do Instytutu pod nazwami „KLEJ WERSJA 1”, „KLEJ WERSJA 2” oraz „KLEJ WERSJA 3” spełniają wymagania w zakresie przyczepności do materiału termoizolacyjnego po warunkach laboratoryjnych

Zastępca Kierownika
Zakładu Gipsu i Chemii Budowlanej


mgr inż. Klaudiusz Borkowicz

Z poważaniem

APPLICATIONS

NUMBERS OF CELLQ® GRADES:

- ✓ ETICS
- ✓ CMP
- ✓ CTA
- ✓ MORTARS
- ✓ GMP
- ✓ PUTTY

TAILOR MADE CELLQ®

OTHER OPTIONS

MODIFICATION

TARGET VISCOSITY IN THE WHOLE RANGE

CEMENT / FILLERS FLOCCULATION

LESS / HIGHER DENSITY OF THE MORTAR

WETTABILITY OF THE SURFACE / TILES / FILLERS

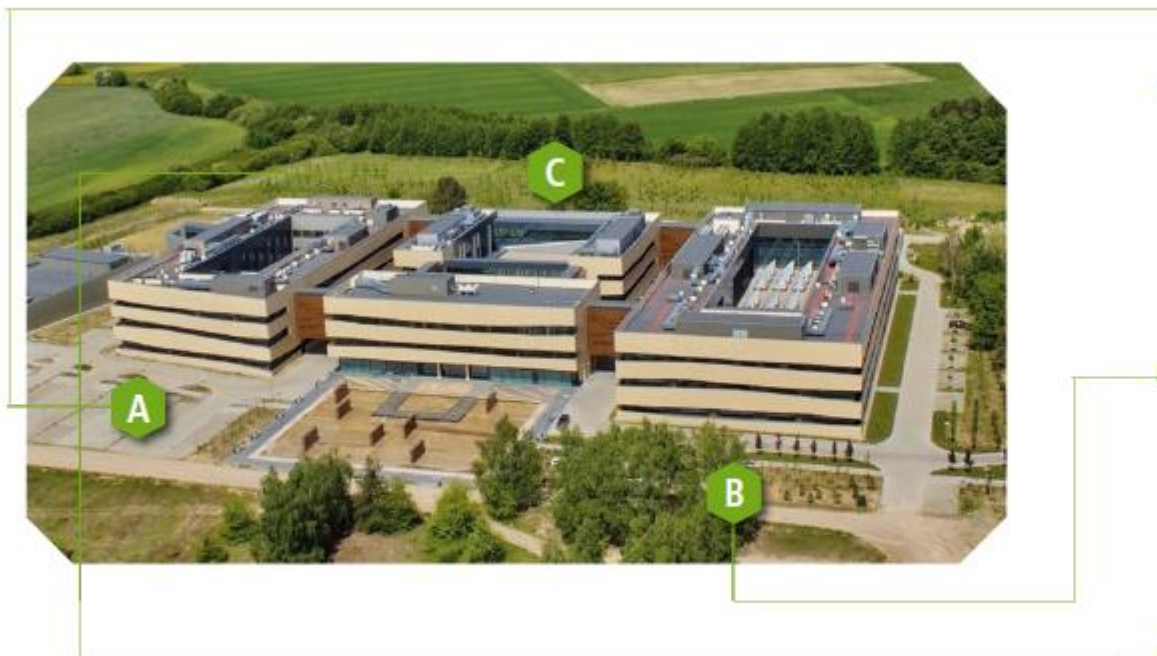
DISPERSABILITY OF FILLERS

REDUCED OR ELIMINATE SAGGING

HIGH TIXOTROPIC INDEX / LOW TIXOTROPIC INDEX

EXTENDED OR REDUCED OPEN TIME AND / OR SETTING TIME

HSH CHEMIE INNOVATIVE CENTER



MATERIALS SCIENCE

| | |
|--|---|
| Laboratory of Microscopy and Nanomechanical Measurements | 1 |
| Mass Spectrometry Labs | 3 |
| NMR Spectrometry Labs | 5 |
| Thermal Analysis Lab | 6 |
| Infra-Red Spectroscopy Lab | 6 |
| X-Ray Lab | 7 |
| Chromatography | 7 |

CHEMICAL TECHNOLOGIES AND NANOTECHNOLOGIES

| | |
|---|----|
| Special Condition Syntheses | 8 |
| Thermal Analysis | 11 |
| Electrochemistry, Thermal and Mechanical Processing | 12 |
| Special Equipment | 14 |
| Plastics Processing | 16 |
| Rheological Properties | 17 |
| Mechanical Properties | 18 |

BIOTECHNOLOGY

| | |
|--------------------------|----|
| Biomedical Biotechnology | 19 |
| Plant Biotechnology | 22 |
| Industrial Biotechnology | 24 |

HSH CHEMIE INNOVATIVE CENTER

1. CELLQ MODIFICATION – NEW GRADES, NEW PROJECTS
2. TAILOR MADE GRADES
3. ALL TESTS PROVIDE ACCORDING EN STANDARDS

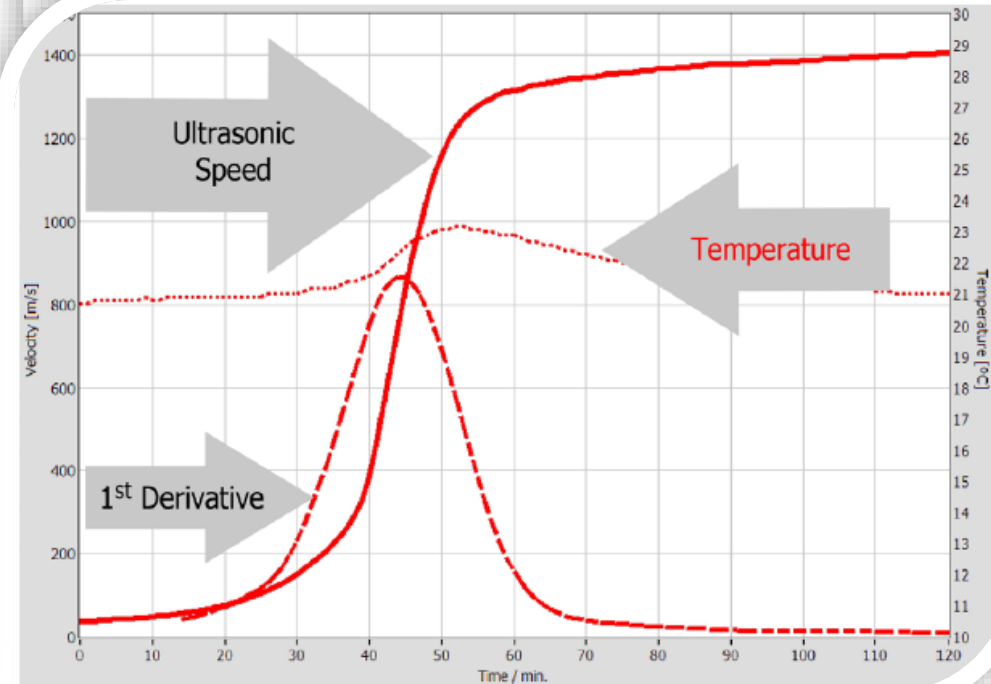
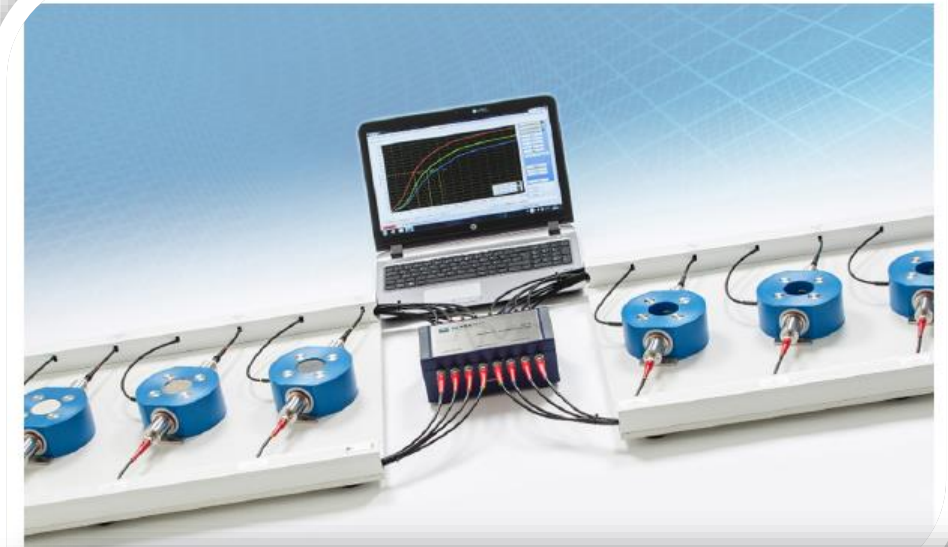


INNOVATIVE CENTER - EQUIPMENT

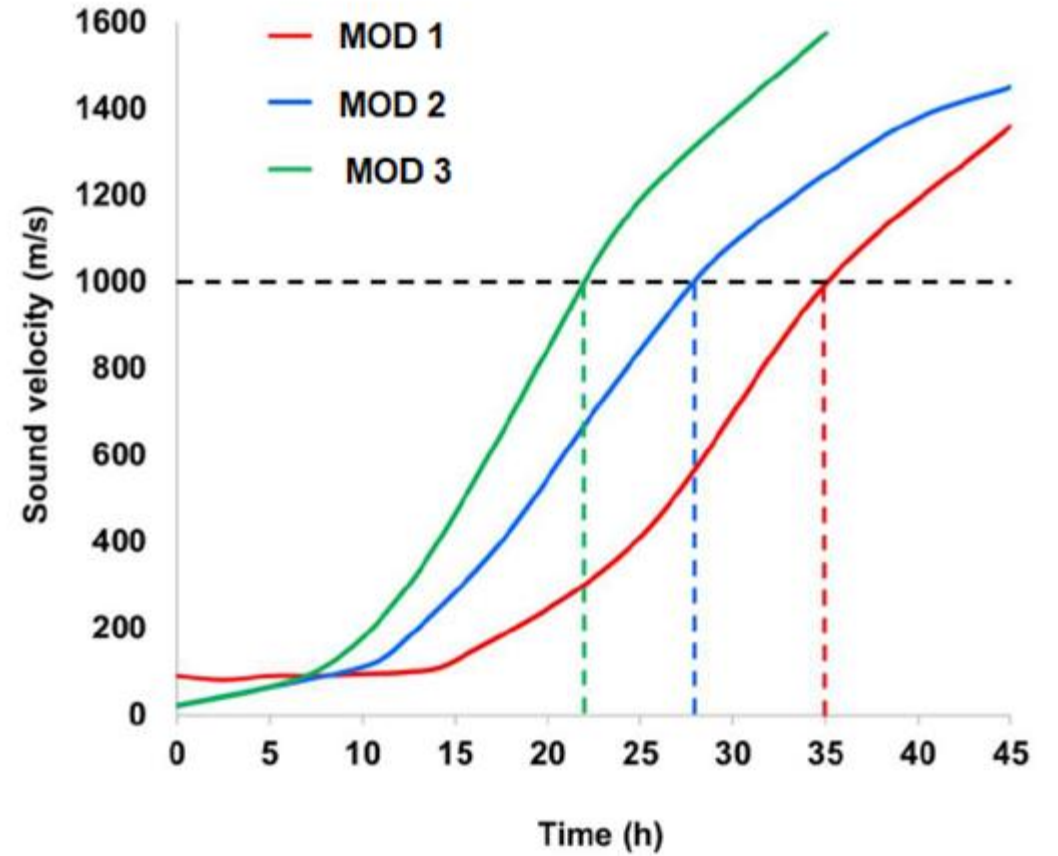
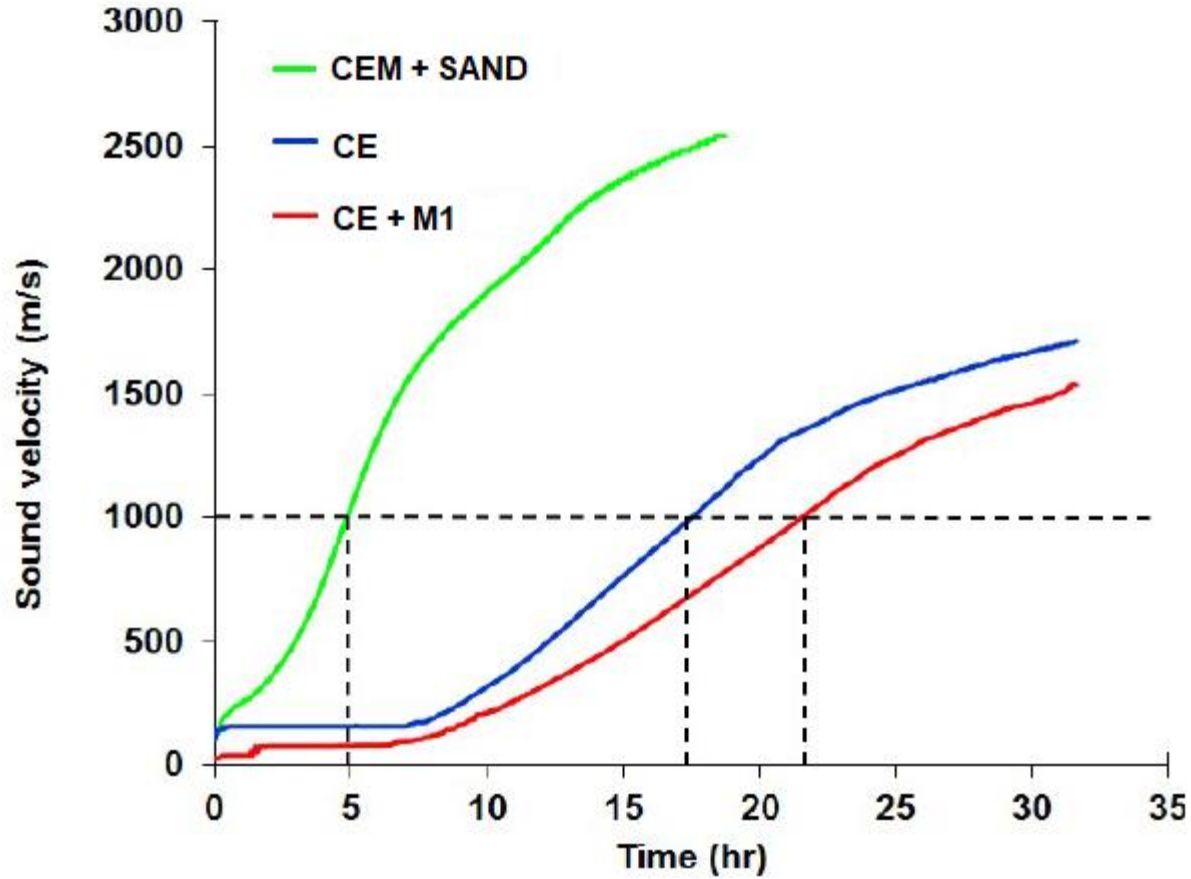
8-Channel Ultrasonic Measuring System IP-8

Precise measurement of setting processes in

DEVELOPMENT | RESEARCH



INNOVATIVE CENTER - EQUIPMENT



APPLICATIONS



Cement Tile Adhesive (CTA)

Suitable grades:

- CELLQ 6030
- CELLQ 3050
- CELLQ 45
- CELLQ 45020
- CELLQ 35020



APPLICATIONS



Suitable grades:

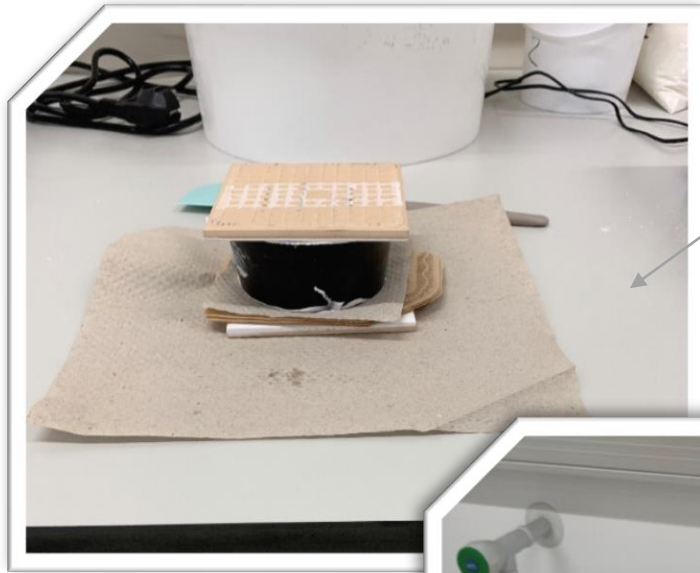
CELLQ 3004
CELLQ 1406
CELLQ 3050
CELLQ P 50S



Putty (Joint compound,
Finishing plaster, GFP)



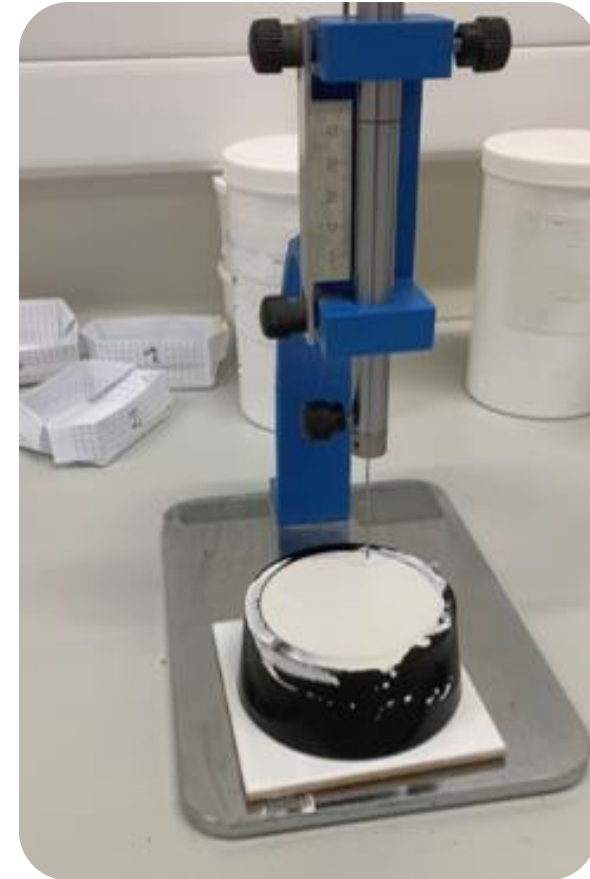
PUTTY (TEST FOR CUSTOMER – NEW GRADE)



Water Retention



Consistency - Thickening efficiency



Setting time (Vicát)

APPLICATIONS

Gypsum Machine Plaster (GMP)



Suitable grade: CELLQ 1406

APPLICATIONS

Cement Machine Plaster (CMP)



Suitable grades:

CELLQ 1002, 3050, 3004, 35020



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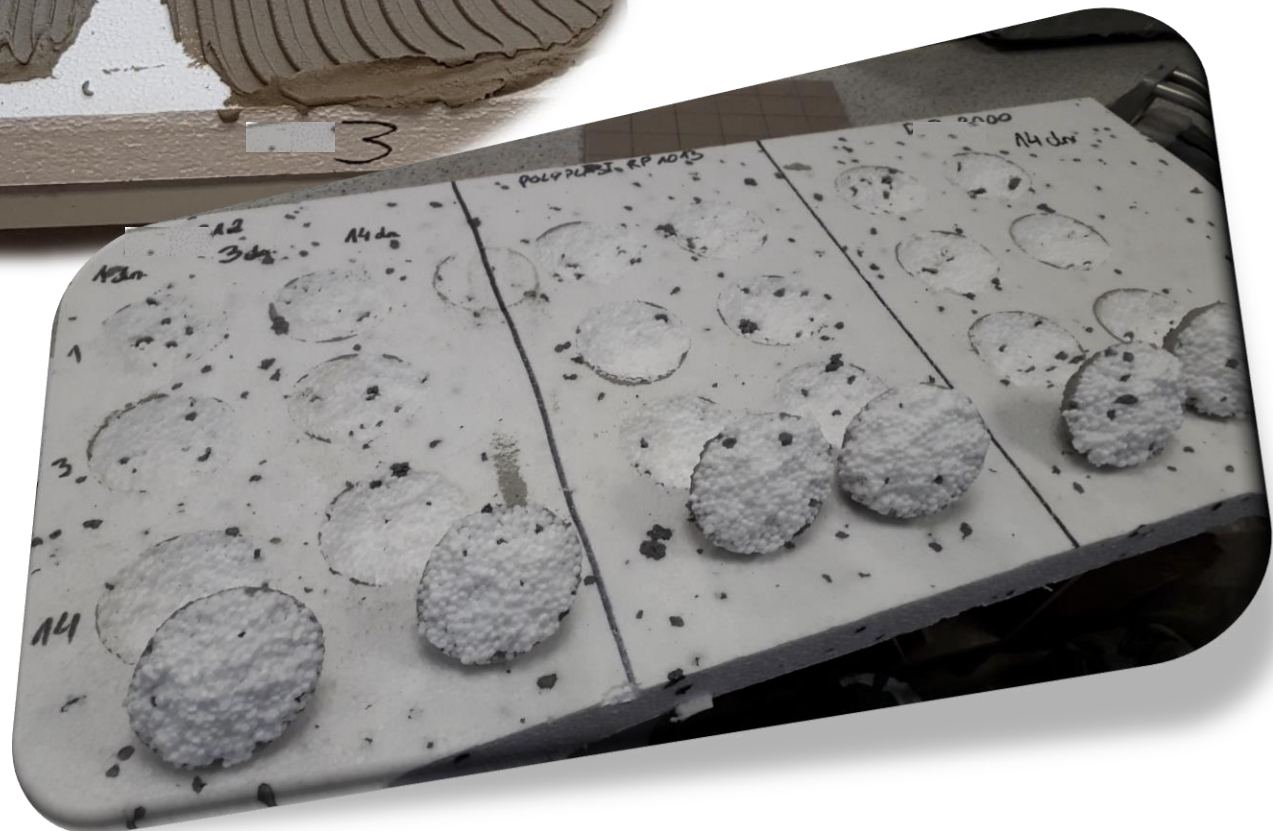
APPLICATIONS



Exterior
Thermal
Insulation
Composite
System


Suitable grades:

CELLQ 45
CELLQ 1202
CELLQ 3050
CELLQ 4002
CELLQ 45020

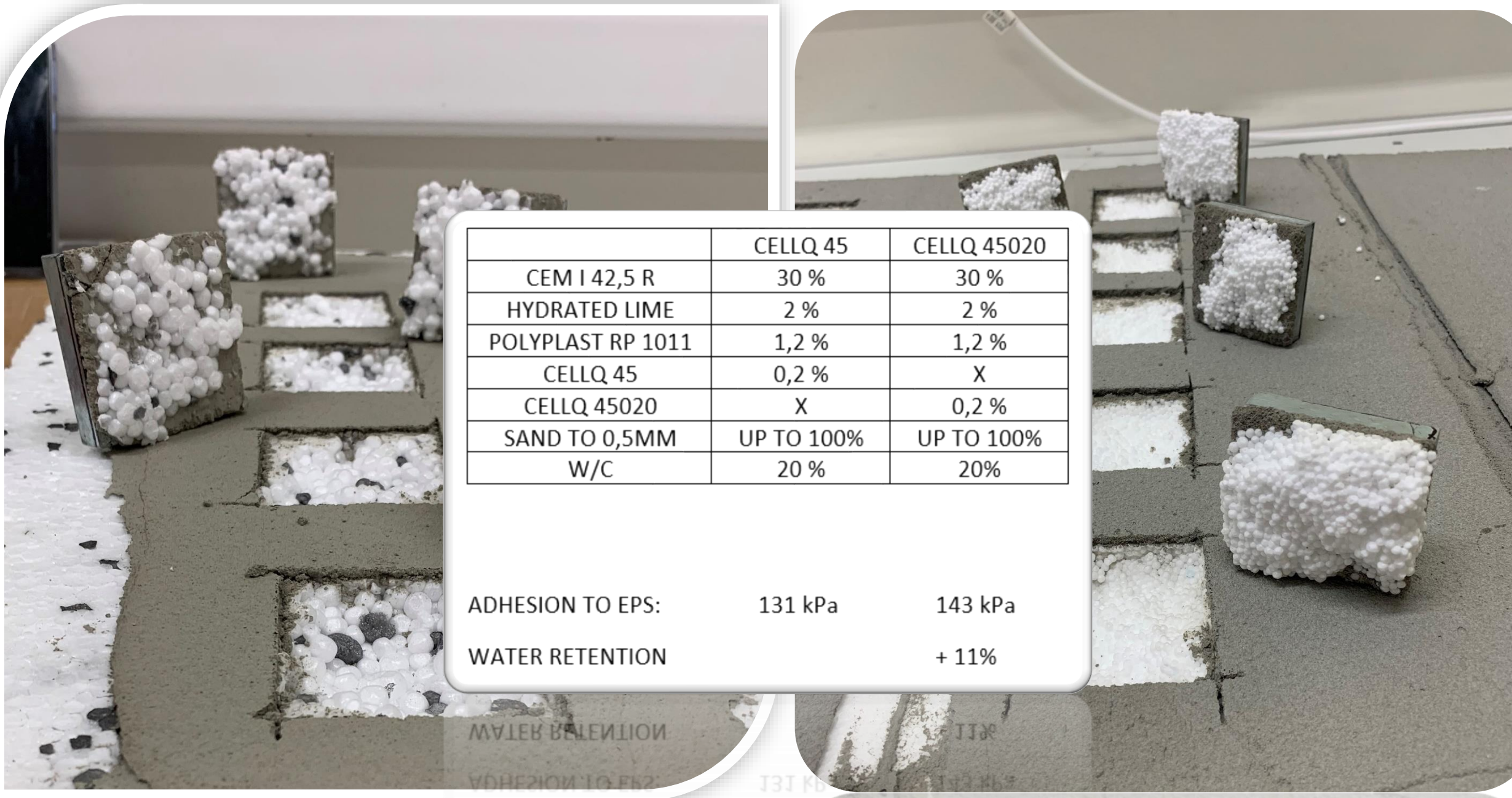


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COMMERCIALIZED GRADES

| NAME | AVERAGE VISCOSITY (2%) | APPLICATION | PERFORMANCE |
|---|------------------------|------------------------|---|
| CELLQ 45 | 45.000 | ETICS, CTA | OVERALL GOOD PERFORMANCE, HIGH WATER RETENTION, GOOD THIXOTROPIC PROFILE, SLIGHTLY DELAY OF CEMENT HYDRATION |
| CELLQ 45020 | 45.000 | ETICS, CTA | OVERALL GOOD PERFORMANCE, EXTREMELY HIGH WATER RETENTION, VERY GOOD THIXOTROPIC PROFILE, IMPROVED ADHESION TO EPS |
| CELLQ 3050 | 30.000 | CTA, ETICS | CTA C2 & C1, USEFUL FOR ETICS, REDUCED SAG, REDUCED STICKINESS TO THE TOOL, |
| CELLQ 35020 | 30.000 | CTA, ETICS | CTA C2 & C1, CEMENT PLASTER, USEFUL FOR ETICS, REDUCED SAG, REDUCED STICKINESS TO THE TOOL, IMPROVED WATER RETENTION |
| CELLQ 6030 | 12.000 | CTA PREMIUM | HIGHLY MODIFIED, FOR CTA C2 TE CLASS. LONG OPEN TIME, REDUCED SAG, IMPROVED COHESION STRENGTH OF THE MORTAR |
| CELLQ 1202 | 55.000 | ETICS, MORTARS | HIGH WATER CAPACITY AND WATER RETENTION, EXCELLENT OPEN TIME WITHOUT DELAY OF CEMENT HYDRATION |
| CELLQ 1002 | 15.000 | MACHINE PLASTERS | OUTSTANDING STABILISATION OF VERY HOMOGENOUS AIR VOIDS, VERY HIGH YIELD POINT, REDUCED STICKINESS TO THE TOOL, REDUCED CRACKING OF PLASTER, HIGH WATER CAPACITY |
| CELLQ 4002 | 47.000 | CTA, ETICS | ECONOMIC GRADE FOR TILE ADHESIVE C1 AND C2. MIGHT BE USED FOR ETICS AND OTHER CEMENT MORTARS |
| CELLQ 8381 | 40.000 | CMP, CHP, CTA, ETICS | ECONOMIC GRADE FOR MACHINE PLASTER. HIGH WATER RETENTION WITH LOW DOSAGE. SUTABLE FOR CTA AND ETICS |
| CELLQ 2330 | 30.000 | CTA, PLASTERS, MORTARS | SPECIAL GRADE FOR CTA. INCREASED STRENGTH OF THE FINAL ADHESIVE TO THE SURFACE / TILE VERY HIGH THICKENING EFFICIENCY |
| CELLQ 3004 | 20.000 | TLM, PLASTERS, CTA | LONG OPEN TIME / CORRECTION TIME, VERY CREAMY CONSISTENCY, EXCELENT WORKABILITY |
| CELLQ 1212 | 55.000 | ETICS, CTA, MORTARS | HARDLY FLOCCULATION PROPERTIES, ADHESION TO DIFFICULT SUBSTRATES IMPROVED, |
| CELLQ P 25 S | 25.000 | PAINTS | DELAYED SOLUBILITY TO AVOID ANY CREATION OF LUMPS. STABLE IN LONG RANGE OF PH. UNIVERSAL |
|  HSH Chemie | | | |
| CELLQ P 50 S | 50.000 | PAINTS & PLASTERS | HIGH VISCOSITY ECONOMIC GRADE TO ALL TYPES OF READY TO USE PRODUCTS SUCH AS PAINTS, PLASTERS, PUTTIES AND SO ON |

NEW CELLQ 45020



| | CELLQ 45 | CELLQ 45020 |
|-------------------|------------|-------------|
| CEM I 42,5 R | 30 % | 30 % |
| HYDRATED LIME | 2 % | 2 % |
| POLYPLAST RP 1011 | 1,2 % | 1,2 % |
| CELLQ 45 | 0,2 % | X |
| CELLQ 45020 | X | 0,2 % |
| SAND TO 0,5MM | UP TO 100% | UP TO 100% |
| W/C | 20 % | 20% |

ADHESION TO EPS: 131 kPa 143 kPa

WATER RETENTION + 11%

THE BAG OF CELLO



