

CHEC Analysis Equipment listContact Søren Post at spos@kt.dtu.dk

Analyse teknik	Producer name and model	Description
Adhesion measurement	Pat Handy 6.3 kN	Adhesion of paint
Balances	Analytical and technical balances	7 analytical and 7 technical balances
BET	BET.Quantachrom Autosorb Q2	Surface area analysis and pore size measurement
Bomb Calorimeter	Parr 6300	Oxygen Bomb Calorimeter, heat of combustion (MJ/kg)
Bombekalorimeter:	IKA C200	Measure gross calorific value.
Centrifuge	Eppendorf 5804R	Thermostated centrifugation from - 10 to 25 °C
Centrifuge	Eppendorf 5403	Thermostated centrifugation from - 10 to 25 °C
CHN-S elemental analyzer	EuroVector. EuroEA 3000	CHN-S elemental analyzer
Coating permeability test	CHEC build	Two chambers separated with test-film - Salt penetration
Coatmaster	Coatmaster 509 MC-III:	Generating paint films in well defined thickness
Coffee grinder	Mahlkönig	Medium grinder with energy consumption
Conductometer	Metronohm 712	Measure Conductivity
Cooling	Refrigerators and freezers	3 refrigerators and 2 freezers
Cooling baths	Cooling bathes (Heto,)	10 cooling and heating bath from -20 - 250°C
Corrosion test	Apparat model 608-400 plus	Salt spray chamber
Crucibles	Crucibles	Alumina, Procelain and Platinum crucibles.
Density measurement	Erichsen Pycnometer 2B009	Density measurement of paint
Dilution equipment	Hamilton diluter	Automatic diluter to dilute liquid samples
Dish wash	KEN 315 Lab	315 LAB. Upright lab. dish washer one drawer
Dissolver	Dissolver – Diaf Type 20 VH	Paint formulation
Dry matter determination	Mettler PM460	To determine moisture content or dry weight. 40 to 160°C
Dry matter determination	Sartorius MA40	6 decimals on the weight.
Epoxy embedding	Struers	Embedding of samples. Epoxy course required for work.
FID-analyzer	M&A Thermo FID type ES. FID-analyzer	Total hydrocarbons
Flash pyrolyzer	Pyrola 2000	Temperature range 500-1000 °C, connected to GCMS
Flexibility testing	Dorn Model 266	Flexibility of paint
FT-IR	Agilent Cary 600	MID and FAR FT-IR
FT-IR	Bomem 154S	MID FT-IR
FT-IR	Bomem 155	MID FT-IR
Full pipets	Pipets glas	Volumetric measurements
Gas analyzers	Fisher-Rosemount NGA2000 and Eco Physics CLD 7	CO, CO ₂ , O ₂ , SO ₂ , NO, NO ₂ , NO _x
Gas Analyzers	Fisher-Rosemount NGA2000, ABB Limas, Uras	CO, CO ₂ , O ₂ , SO ₂ , NO, NH ₃

GC	GC - Agilent 6890N - TCD/FID	Alcohols/Esters/Ethers/Acetic acid/SO ₂ / H ₂ S/Hydrocarbo
GC	GC - Shimadzu, GC-2014 - TCD	Online analyze for H ₂ ,CO,CO ₂ ,Air,CH ₄ and Ethane (He)
GC	Agilent 6890N	Standard GC for VOC (Volatile organic compounds) analys
GC	Gascromatografi Agilent 7890A	H ₂ (Ar), CH ₄ , CO ₂ , CO, N ₂ and O ₂ (He) - Detector: TCD.
GC	Agilent 7890A	FID and TCD detectors, lipids, hydrocarbon determination
GC-MS	Thermo Fisher Scientific, Trace GC + DSQ massespe	N ₂ , O ₂ , CO, CO ₂ , Alkanes, Alkenes, Alcohols, Aldehydes, k
GC-MS	Shimadzu, GCMS-QP2010Ultra	The system is a GC-MS/FID equipped with autosampler. A
GC-MS	Saturn IVD	PAH analyses
GC-MS	HP 6890 GC + HP5973 MS	GC-MS
GC-MS	Saturn II	GC-MS
Grinding device	Retsch- Rasps 0,08µm to 5mm	Grinding for homogenizing and scalematerials of dry sam
Grinding equipment	Struers Rotoforce 4	Struers Rotoforce 4
Grindometers	Grindometers	Grinding level measurement
Hardgrove Grindbility Index	Wallace	Coal vs. Biomass comparison
Hardness measurement	Bucholz Erichsen Model 263	Hardness of paint
HCl-analyse	Servomex. Servotough 2510HTN. HCl-analyzer (gas	HCl 0-1000 ppm
Heating block	Eppendorf	Heatingblok of small eppendorftubes
HPLC	ELITE CHROHM	High performance liguid cromatografi
Impact testing	Erichsen Model 304	Hardness of paint
IR-Camera	Cedip Titanium	Fast IR imaging
Kamera	Pixelink-camera	Mounted on the stereo mikroscope with software(Size m
LC-MS	Finnigan LCQ	LC-MS
LDA	Dantec	LDA velocity measurement system
LIN storage containers	Nitrogenbeholdere til flydende Nitrogen.	Small and large container for liquid nitrogen.
Magnetic stirring	Magnetic stirres – single and variomag	Mixing liquid samples
Micro-GC	Agilent GC-2802A - Three channel, each with a TCD	Analyze products from gasification of biomass and coal. f
Micro-GC	Micro-GC. Varian CP4900	Dual channel
Microscope	Nikon Eclipse MC600L	Normal rectilinear microscope
Microtome	Finesse 325	Cutting very thin slices of an object
Mixing	Hobart mixer	Mixer(liquid samples) typical 10 ml glasstubes
Moisture Analyzer	KERN MLB50-3	Moisture analysis
MS	MS Hiden QGA	Measure gas molecules with help from an Electron Impac
Muffel oven	Vecstar Muffel oven	Can heat up to 1100C
Oven	Entech ETF 40/15-S	STA Test Oven. Ø40mm
Ovens	Heraus and Binder ovens	Can heat up to 250 - 300C
Paraffin dispenser	Kunzt Instrument WD-4	Mounting various objects mainly for cutting in the microt
Particlesize	Malvern Mastersizer	Particlesize with lazer difraction. From 0,01- 1000µm

pH meter	PHM92, Radiometer	Glass elektrode to measure pH from 2-12 (liquid samples
pH meter	Metrohm 826 pH mobile	Portable pH meter fom 2- 12 pH
Pipets	Pipets electric and manual	Manuel pipettes from 2 µl- 5 ml
Reaktor - Lundbeck	Lundbeck reaktor setups	Different glasfilterreactorer 1 liter
Red Devil	Mechanical Shaker – Red Devil Model 5400 EH	Paint formulation - grinding
Rotary evaporator	IKA RV10 Control / HB10 control	Rotary evaporator
Run-out beaker	Run-out beaker - Model 243/VII	Paint viscosity - Tellus C32 olie udløbstid 55 sec.
Sample mixer	V. Løwner mixing device	Mixing of different powder
Sample subdivider	Type PT1000 Retsch, 8 glases	Automatic reducer to get a correct and representative sam
Scratch marker	Erichsen model 427	Hardness of paint
Sieve device	Retsch	For sieving/splitting a sample into a specific particle size.
Single pellet press	COMPAC	Pressing single pellets
SMPS	SMPS	Size and concentration of submicron particles in gases (5
STA	STA Netzsch F409	Thermogravemetric analysis - mechanical balance
STA	STA 449 F1 with Autosampler	Thermogravemetric analysis - with Auto sampler
STA	STA-Flash 449 F1	Thermogravemetric analysis - Flash oven
Statistical Glossmeter	Elcometer 407	Paint shine
Stereo microscope	Leica with Heating Stage	Microscopic studies under heating, max temp 1750°C. 50
Stirring	IKA stirring apparatus	Mixer, heater and stirring apparatus
Syringe pump	Alaris : IVAC P7000 MKII	Continuously dosage of small amount of liquid sample.
TGA	Netzsch TGA 209 F3	Thermogravemetric analysis
Thickness measurement	Elcometer 355	Thickness of paint
Titration	Metrohm domimat 2 stk 702 SM Titrimo	Automatic pH titration
Tube furnace	DIN 53436	Temperature range 200-1000 °C
Tumbling Tester	Tumbling Tester	Durability test for pellets
Ultra pure water	ELGA-Maxima:	Uses ultrafiltering, ion exchange, photooxidation, adsorptic
Ultrasonic bath	Retsch	Ultrasonic bath with timer 5 liter bath
UV Spectrometer	Ocean	UV Spectrometer
UV test	Atlas model 120-130 vac 50-60 Hz	UV test af paint samples
UV/NIR Spectrometer	Ocean	UV/NIR- IR Spectrometer
UV/VIS Spectrometer	Spectra Pro 2500i	UV/VIS Spectrometer
Viscometer	KR140	Viscosity measurement
Water determination	Karl-Fischer 701 KF Titrimo	Determination of water content. Volumetric titration. An