



TEST MENU DRANCO LCS

Physico-Chemical Parameters Test Name	Parameter	Method	Application	Unit
Dry matter (DM)	Total dry matter content of a sample (= negative of moisture content)	Sample is dried at 105°C, the remaining mass divided by the initial mass is the dry matter content	Determines solids-to-water ratio; expresses parameters (e.g., nitrogen) on a DM basis for comparability across feedstocks. Combines DM with volatile solids (VS) for accurate organic loading rate. DM correlates with degradable organic matter; used in biogas potential (BPP) assays. Detects variability; adjusts water or feed ratios; optimizes hydrolysis and digestion.	%
Volatile matter (VM)	Volatile matter content of a sample	Sample is put in an oven at 550°C after drying, the lost mass (evaporation + conversion to gasses) divided by the mass of dry matter is the volatile matter content	Indicative of the organic fraction in a sample	% on DM
Total Suspended Solids (TSS)	The non-dissolved dry matter in a liquid sample	Sample is centrifuged or filtered, the remaining solids are dried and determined for dry matter	<u>Water treatment:</u> - Indicative of degree of pollution for influent/effluent samples - Indicative of active biosludge in process samples <u>Dewatering:</u> - Indicative of dewatering efficiency	g / L
Volatile Suspended Solids (VSS)	The non-dissolved organic matter in a liquid sample	Sample is put in an oven at 550°C after TSS determination, the lost mass (evaporation + conversion to gasses) divided by the initial filtered/centrifuged dried mass is the VSS	Indicative of the organic fraction in the suspended solids of a liquid sample	g / L
Acidity (pH)	Hydrogen potential or acidity (pH) of a liquid sample	pH probe (on diluted samples for pasty substrates)	Important parameter in a whole range of biological processes	
Electroconductivity	Electric conductivity (pH) of a liquid sample	EC probe	Indicative of salt content	mS / cm

Nitrogen analysis Test Name	Parameter	Method	Application	Unit
Kjeldahl Nitrogen (Kj-N)	Sum of organic bound Nitrogen and ammonia Nitrogen	Analysed via the Kjeldahl method, using destruction, distillation and titration	In most cases indicative of total nitrogen content. Important for estimating potential ammonia inhibition in anaerobic digestion.	mg/ kg DS or mg / L
Ammonia concentration (NH4-N)	Ammonia Nitrogen	Analysed via titration after distillation	Important parameter in the nitrogen cycle of biological degradation processes (anaerobic digestion, fermentation, composting, water treatment). Also potential inhibitor in anaerobic digestion.	mg / kg or mg / L
Total Nitrogen	Sum of organic bound Nitrogen and Ammonia Nitrogen and oxidized Nitrogen	Analysed similar to the Kjeldahl method, using destruction, distillation and titration	Measurement of total Nitrogen content for samples of aerobic biological degradation processes. Possible to calculate oxidized Nitrogen (NO3 and NO2) if measured together with Kjeldahl Nitrogen.	mg/ kg DS or mg / L
Ammonium Release Test	Percentage of Kjeldahl nitrogen converted to ammonia Nitrogen in anaerobic processes.	Measurement of ammonia content after controlled anaerobic fermentation.	Important in estimating potential ammonia inhibition in anaerobic digestion.	% on Kj-N

Oxygen Demand Test Name	Parameter	Method	Application	Unit
Chemical Oxygen Demand (COD)	Amount of oxygen required to chemically oxidize all organic substances in a liquid sample	Spectrophotometric determination after catalytic oxidation.	wastewater treatment monitoring, industrial effluent control, Environmental impact, calculate organic loading rates and biogas potential.	mg COD/L
Biochemical Oxygen Demand (BOD)	Amount of oxygen required to oxidize biologically degradable substances in a liquid sample	Manometric determination of oxygen consumption after controlled stationary aerobic degradation.	In relation to COD it is indicative of biodegradable fraction of the organic matter.	mg BOD/L

Chemical Composition Test Name	Parameter	Method	Application	Unit
FOS/TAC ratio	balance between acid production and buffering capacity.	Analysed via titration after distillation	Quick diagnostic tool for process health. Helps operators adjust organic loading rate or feed composition before severe acidification occurs.	
Chloride (Cl-) concentration	Chloride content of sample.	Spectrophotometric determination of Chloride content.	Water quality control, environmental impact, corrosion control.	mg/L
Fatty acid concentration	Concentration of the fatty acids: acetic acid, propionic acid, isobutyric acid, butyric acid, isovaleric acid, valeric acid, isocaproic acid, caproic acid, heptanoic acid, octanoic acid	Determination via gas chromatography	The spectrum of fatty acids can be used as a fingerprint for the stability and process control of anaerobic fermentation processes.	mg/L
Lactic acid quantification	Lactic acid	Spectrophotometric determination of lactic acid	Feedstock characterization, process optimization, research and kinetics	mg/L

Physical properties				
Test Name	Parameter	Method	Application	Unit
Sludge Volume Index (SVI)	Ratio between the volume of settled sludge and total suspended solids	Measurement of settled volume and divided by TSS content	Indicates settleability	ml/g
Visual assessment of non-organics	determination of non-organic compounds in samples	manual detection and selection.	Preliminary test to quantify non-organic impurities in waste samples	
Selection test	Fraction analysis in samples	Manual determination of different fractions in a sample, including <5mm, plastics, textiles, inerts and the organic fraction	Used to quantify non-organic impurities in waste samples	

Chemical elements and contaminants				
Test Name	Parameter	Method	Application	Unit
Element concentration	Measures concentrations of P, K, Mg, Ca, Pb, Cu, Ni, Cr, Sr, V, Se, Fe, Hg, Zn, Cd, Co, B, Li, Mo, Al, As, S	GC-ICP	Nutrient assessment, process monitoring, environmental protection, regulatory compliance, resource recovery	mg/L
Ortho-phosphates quantification	Measures concentrations of Ortho-phosphates	Colorimetric	key indications for phosphor availability and nutrient load	mg/L
Mineral oil presence	determines minerale oil contaminations in bio samples	Extraction and Gas chromatography	enironmental, industrial and safety measures	mg/L
Polychlorinated Biphenyls (PCBs)	determines concentrations of PCBs	Gas chromatography	Highly toxic, presistend and regulated pollutants	mg/L
Polycyclic aromatic hydrocarbons (PAHs).	mesures concentrations of PAHs	Chromatography	environmentally and toxicologically polutants	mg/L
Concentration of Benzene, Toluene, Ethyl benzene, Xylene (BTEX)	determines concentrations of benzene, toluene, ethyl benzene and Xylene.	Chromatography	Volatile organic polutants with significant health and environmental risks	mg/L

Biological and Fermentation Parameters				
Test Name	Parameter	Method	Application	Unit
Biogas production potential	Measures the biogas production potential for liquid and solid substrates	Produced volume of biogas after anaerobic degradation of the test substrate under controlled conditions and after addition of active anaerobic inoculum. Can be run for 7, 14 or 21 days; with or without methane content determination.	Important parameter in estimating mass balance of anaerobic digestion for a substrate in a full scale plant.	NL/kg
Residual biogas production (BPP30/BPPP10)	Measures the residual biogas production of anaerobic digestate (=BPP100) and the residual biogas of the digestate it cannot produce itself (=BPP30).	Produced volume of biogas after anaerobic degradation of the digestate under controlled conditions (=BPP100) and after addition of active anaerobic inoculum (=BPP30).	Used in assessment and monitoring of the biology in the anaerobic fermentation process.	NL/kg
Volatile Fatty Acid Production Potential	Potential of a substrate to produce volatile fatty acids during anaerobic fermentation	produced concentrations of volatile fatty acid after anaerobic fermentation of a test substrate under controlled conditions. Can run for 7 - 21	Important parameter to estimate substrate suitability for production of volatile fatty acids.	mg/kg
miniDF (mini DRANCO fermentor)	Lab scale simulation test for anaerobic fermentation. The setup is used to simulate long-term anaerobic fermentation and can be used for both biogas and fatty acid production.	The simulation is conducted by semi-continuous feeding of lab scale reactor under controlled conditions. Biogas production is measured continuously, sampling and analysis is conducted weekly.	It can be used to determine optimal process conditions, detect inhibition, or determine the maximum production capacity.	Extensive report
Viscosity	Assesment of the risk of spontaneous dewatering of solid digestate.	Is measured by the volume of liquid that gravimetrically seperates from the digestate after 1 week.	Important parameter in determining whether the digestate has the proper physical characteristics for dry anaerobic digestion.	class I-V
Flowability	Assesment of the structure of solid digestate.	Is measured by determining the extent to which the digestate holds its structure after application of weights.	Important parameter in determining whether the digestate has the proper physical characteristics for dry anaerobic digestion.	class I-IV