NSTDA Characterization and Testing Service Center

Sample Preparation	
Description	**Unit**
1. Precision Cut-off machine	Time
2. Hot mounting	Time
3. Vacuum Impregnation/Cold Mounting	Sample
4. Polishing machine (Sandpaper, Diamond)	Sample
5. Ion Milling	Hour
6. CPD (Critical Point Dryer)	Time
7. Freezer mill	Time
8. Laser cutting	Hour
9. CNC Milling (Computer Numerical Control)	Hour
10. 3D Printing (Polylactic acid (PLA))	Hour
Optical Microscope	
Description	**Unit**
1. Optical Microscope with High-definition color camera head (DS-Fi2)	Hour
2. Optical Microscope with PC control-based control unit (DS-U3)	Hour
3. Optical Microscope (Eclipse LV-N, LV100DA-U) With Function grain size and Cast iron (NIS Element D)	Hour
Melt Flow Index Test	
Description	**Unit**
Common plastic	
1. Method A: Manual cut-off (MFI, Melt Density)	Sample
2. Method B: Automatic method (MVR, MFI) :Customer already know Melt Density	Sample
3. Method C: Automatic method: Half Die (High MFI ≥ 70 g/10min)	Sample
4. Drying Oven	Sample
Engineering plastic	
1. Method A: Manual cut-off (MFI, Melt Density)	Sample
2. Method B: Automatic method (MVR, MFI) :Customer already know Melt Density	Sample
3. Method C: Automatic method: Half Die (High MFI ≥ 70 g/10min)	Sample
4. Drying Oven	Sample
If the customer choose Method B and need Melt Density Calculation : (Extra charge)	
Heat Distortion Temperature Test	
Description	**Unit**
1. Operating Test	Test

Nano Search Microscope	
Description	**Unit**
1. Operating time	Hour
3D Digital Video Microscope	
Description	**Unit**
1. Operating time	Hour
Atomic Forced Microscope (AFM 5500 or AFM 5300)	
Description	**Unit**
1. Operating time	Hour
2. AFM Image	Picture
Field Emission Scanning Electron Microscopes (FE-SEM)	
Description	**Unit**
1. Operating time	Hour
2. SEM	Picture
3. Coating	Time
4. EDS (Energy Dispersive X-Ray Spectroscopy)	Picture
5. EBSD (Electron Backscatter Diffraction) Mapping, Line scan, Point, Area	Picture
Transmission Electron Microscope (TEM)	
Description	**Unit**
1. Operating time	
2. TEM (Dark field, Bright field, Diffraction pattern)	Picture
3. EDS (Energy Dispersive X-Ray Spectroscopy) Mapping, Line scan, Point, Area, Area scan	Picture
X-ray Photoelectron Spectroscopy (XPS)	
Description	**Unit**
1. XPS Component analysis	Hour
2. Ultraviolet Photoelectron Spectroscopy (UPS)-Operation time	Element
3. UPS-Component analysis	Element
4. High temperature gas reaction cell-Operation time	Element
5. High temperature gas reaction cell-Component analysis	Hour
Micro-Energy Dispersive X-ray Fluorescence Spectrometer (Micro-EDFRF)	
Description	**Unit**
1. Sample testing (1 point)	Sample
2. Extra testing point in same sample	Point
3. Sample preparation with film	Sample
4. Testing with Helium path (For liquid sample)	Time

Single-Crystal X-ray Crystallography (SC-XRD)	
Description	**Unit**
1. Small molecule (Mole Molecule < 5,000)	
- Screen crystal with Optical Microscope and crystal mount	Sample
- Screen crystal and unit cell checking	Hour
- Full data collection (Room Temperature)	Hour
- Full data collection (Low Temperature)	Hour
- Analysis structure	Sample
2. Macromolecule (Mole Molecule < 5,000)	
- Screen crystal with Optical Microscope and crystal mount	Sample
- Screen crystal and unit cell checking	Hour
- Full data collection (Room Temperature)	Hour
- Full data collection (Low Temperature)	Hour
- Analysis structure	Sample
Small Angle X-Ray Scattering (SAXS)	
Description	**Unit**
1. Operating time	Hour
2. Nanostructure analysis	Hour
Wavelength Dispersive X-Ray Fluorescence (WDXRF)	
Description	**Unit**
1. Sample testing	Sample
2. Sample Preparation	Sample
X-ray Powder Diffraction (XRD)	
Description	**Unit**
1. Sample preparation	Sample
2. Sample testing	Sample
UV-Vis-NIR Spectrophotometer (UV-VIS-NIR)	
Description	**Unit**
1. Sample testing (30 minute)	Sample
Gas Chromatography - Mass Spectrometry (GC-MS)	
Description	**Unit**
1. Qualitative	
- Head space (Sample preparation, Customer condition, Trial Condition)	Sample
- Auto Injection (Sample preparation, Customer condition, Trial Condition)	Sample

Gas Chromatography - Mass Spectrometry (GC-MS)	
Description	**Unit**
2. Quantitative - Head space (Sample preparation, Calibration Curve , Customer condition, Trial Condition - Auto Injection (Sample preparation, Calibration Curve , Customer condition, Trial Condition	 **Sample** **Sample**
Liquid Chromatography - Mass Spectrometry/ Mass Spectrometry (LC-MS/MS)	
Description	**Unit**
1. Trial condition within 3 h	Sample
2. Customer condition	Sample
Liquid Chromatography -QTOF (LC-MS/QTOF)	
Description	**Unit**
1. Qualification (Trial Condition)	Sample
2. Qualification (Condition)	Sample
3. Quantitation (Trial Condition)	Sample
4. Quantitation (Condition)	Sample
5. MS Library search (10 Analyte)	Sample
6. MS/MS Library search (10 Analyte)	Sample
Inductively Coupled Plasma - Atomic Emission Spectroscopy (ICP-AES)	
Description	**Unit**
1. 10 Elements (Digestion sample)	Sample
2. Oil Sample Follow ASTM D5185 (22 Elements)	Sample
Inductively Coupled Plasma - Mass Spectrometry (ICP-MS)	
Description	**Unit**
1. 10 Elements (Digestion sample)	Sample
Gas Chromatography - Mass Spectrometry / Mass Spectrometry (GC-MS/MS)	
Description	**Unit**
1. Qualitative - EI mode : Auto –Injection (Trial Condition, Customer condition) - EI mode : Headspace (Trial Condition, Customer condition) - EI mode : SPME (Trial Condition, Customer condition) - NCI & CI mode : Auto – Injection (Trial Condition, Customer condition) - NCI & CI mode : Headspace (Trial Condition, Customer condition) - NCI & CI mode : SPME (Trial Condition, Customer condition)	 Sample Sample Sample Sample Sample Sample

Gas Chromatography - Mass Spectrometry / Mass Spectrometry (GC-MS/MS)	
Description	**Unit**
2. Quantitative	
- EI mode : Auto –Injection	Sample
- EI mode : Headspace	Sample
- EI mode : SPME	Sample
- NCI & CI mode : Auto – Injection	Sample
- NCI & CI mode : Headspace	Sample
- NCI & CI mode : SPME	Sample
Imaging Mass Spectrometry (IMS)	
Description	**Unit**
1. Analysis	Sample
2. Sample Preparation with Cryostat	Sample
High-performance liquid chromatography (HPLC)	
Description	**Unit**
1. Trial condition within 3 h	Sample
2. Customer condition	Sample
Thermal Desorption System (TDS)	
Description	**Unit**
1. GC-MS with TDS for VOCs	Sample
2. GC-MS with TDS for VOCs and DNPH	Sample
Differential Scanning Calorimeter (DSC)	
Description	**Unit**
1. Sample testing (-130 to 500 °C)	Sample
Thermogravimetric Analysis (TGA)	
Description	**Unit**
1. Sample testing (Ambient to 1,100 °C)	Sample
TMA	
Description	**Unit**
1. Sample testing	Sample
Raman Microscope	
Description	**Unit**
1. Operating time	Sample
Transmission Electron Microscope (TEM 120 kV)	
Description	**Unit**
1. Operating time	Hour

Transmission Electron Microscope (TEM 120 kV)	
Description	**Unit**
2. TEM Image	Picture
3. EDS (Energy Dispersive X-Ray Spectroscopy) - Mapping/Line scan/Point scan/Area scan	Picture
Enzyme Activity Testing	
Description	**Unit**
1. Amylase	Sample
2. Alpha-amylase	Sample
3. Alpha-galactosidase	Sample
4. Beta-glucanase	Sample
5. Beta-glucosidase	Sample
6. Beta-xylosidase	Sample
7. Cellulase	Sample
8. Cellulase (FPASE)	Sample
9. Dextranase	Sample
10. Invertase	Sample
11. Laccase	Sample
12. Lipase	Sample
13. Mannanase	Sample
14. Pectinase	Sample
15. Phytase	Sample
16. Protease	Sample
17. Xylanase	Sample
18. Pullulanase	Sample
19. Glucoamylase	Sample
20. Polyphenol oxidase	Sample
21. Peroxidase	Sample
Real-time PCR	
Description	**Unit**
1. Real-time PCR	Hour
2. GMOs - Quanlitative: GMO Screening test (35S CaMV – promoter, NOS – terminator)	Sample
3. Meat species and authenticity - Quanlitative: Porcine (Pork) Screening test in Food and Feed - Quantitative detection of Porcine (Pork) DNA in Food and Feed	Sample

Protein analysis	
Description	**Unit**
1. Sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-Page) Staining : Coomassie Brilliant Blue staining/Silver staining Gel Polyacrylamide percentage : 10%/12%/15% Protein marker : 10-250 kDa	Sample
2. Protein Concentration - Bradford protein assay - Lowry protein assay - Biuret method	 Sample Sample Sample
Anti-bacteria test	
Description	**Unit**
1. Qualitative: Antibacterial activity assessment of textile materials : Parallel streak method (AATCC 147)	Sample/Strain
2. Qualitative: Testing for antibacterial activity and efficacy on textile products (JIS L 1902)	Sample/Strain
3. Qualitative: Antimicrobial disk susceptibility tests (CLSI M02-A11)	Sample/Strain
4. Quantitative: Antibacterial finishes on textile materials (AATCC 100)	Sample/Strain
5. Quantitative: Testing for antibacterial activity and efficacy on textile products (JIS L 1902)	Sample/Strain
6. Quantitative: Antibacterial products – Test for antibacterial activity and efficacy (JIS Z 2801)	Sample/Strain
7. Quantitative: Measurement of antibacterial activity on plastics and other non-porous surfaces (ISO 22196)	Sample/Strain
8. Quantitative: Determination of minimal inhibitory concentrations of aerobic bacteria (CLSI M07-A9)	Sample/Strain
9. Quantitative: Standard test method for determining the antimicrobial activity of immobilized antimicrobial agents under dynamic contact conditions (ASTM E 2149)	Sample/Strain
Mutagenicity test	
Description	**Unit**
1. Bacterial reverse mutation test (Ames test)	Sample
Total plate count	
Description	**Unit**
1. Bacteria	Sample
2. Yeast/Mold	Sample
3. After sterilization	Sample
Selective and differential media	
Description	**Unit**
1. Escherichia coli	Sample
2. Salmonella sp.	Sample
3 Vibrio sp.	Sample

Selective and differential media	
Description	**Unit**
4. Staphylococcus sp.	Sample
5. Pseudomonas aeruginosa	Sample
Disinfectant testing	
Description	**Unit**
1. AOAC official method 961.02 germicidal spray products as disinfectants	Sample
2. Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic and institutional areas (EN 1276)	Sample
3. AOAC Use Dilution Test (AOAC 955.14; 955.15; 964.02)	Sample
HPLC-FLD	
Description	**Unit**
1. HPLC-FLD : Trial condition within 3 h	Sample
2. HPLC-FLD : Customer condition	Sample
3. Amino acid analysis : Na-Type (17 amino acids)	Sample
4. Amino acid analysis : Li-Type (38 amino acids)	Sample
GC-TCD/BID	
Description	**Unit**
1. Trial condition within 3 h	Sample
2. Customer condition	Sample
HPLC-PDA/RI	
Description	**Unit**
1. Trial condition within 3 h (for 1 sample)	Sample
2. Customer condition (for 1 sample)	Sample
Texture Analysis	
Description	**Unit**
1. Texture Analysis	Sample
Mechanical Property Testing	
Description	**Unit**
1. Tensile test (Rubber and Polymer) 10kN - 100kN, Static type	Sample
2. Tensile test (Metals and Alloys) 25kN - 100kN, Dynamic type	Sample
3. Flexural and Bending test (Polymer and composites) 10kN-100kN, Static type	Sample
4. Flexural and Bending test (Metals and Alloys) 10kN - 100kN, Dynamic type	Sample
5. Compressive test (Polymer) 10kN - 100kN, Static type	Sample
6. Compressive test (Metals and Alloys) 10kN - 100kN, Dynamic type	Sample
7. Torsion test (Metals and Alloys) (Max Torque 200 N·m)	Sample

Mechanical Property Testing	
Description	**Unit**
8. Impact test (Polymer) at 23±2 °C, 50±5 %RH (Izod and Charpy)	Sample
9. Impact test (Polymer) at 21 °C to -40 °C (Izod and Charpy)	Sample
10. Notching specimen for impact testing (ISO and ASTM)	Sample
11. Die cutting specimen for tensile testing (ASTM D412)	Sample
12. Ring Stiffness, HDPE	Sample
13. Pipe Stiffness	Sample
14. Fatique test (Polymer and Rubber)	Sample
15. Fatique test (Metals and Alloys)	Sample
16. Tensile test (Rubber and Polymer) 10kN-100kN, Static type at 25°C to 250°C	Sample
17. Tensile test (Rubber and Polymer) 10kN-100kN, Static type at 21°C to -35°C	Sample
18. Flexural and Bending test (Rubber and Polymer) 10kN-100kN, Static type at 25°C to 250°C	Sample
19. Flexural and Bending test (Rubber and Polymer) 10kN-100kN, Static type at 21°C to -35°C	Sample
20. Rockwell Hardness (5 points)	Sample
21. Brinell Hardness (5 points)	Sample
22. Vickers Microhardness (5 points)	Sample
23. Vickers Microhardness (Depth Profile)	Sample
24. Durometer Hardness (5 points)	Sample
Aflatoxin (Immunoaffinity Column by Fluorometry)	
Description	**Unit**
1. Aflatoxin (Total)	Sample
2. Aflatoxin M1	Sample
3. Orchatoxin	Sample
4. Flumonizin	Sample
Food Allergen (ELISA Technique)	
Description	**Unit**
1. Crustacean	Sample
2. Egg	Sample
3. Gliadin	Sample
4. Milk	Sample
5. Peanut	Sample
6. Sesame	Sample
Resistant Starch	
Description	**Unit**
1. Resistant Starch (%RS)	Sample

Amylose	
Description	**Unit**
1. Amylose Content (%AC)	Sample
Personal Protection Equipment Testing (PPE Testing)	
Description	**Unit**
1. Determination of a population of microorganisms on products (Cleanliness –microbial- EN ISO 11737-1)	Sample
2. Resistance to wet bacterial penetration (EN ISO 22610)	Sample
3. Resistance to dry bacterial penetration (EN ISO 22612)	Sample
Growth analysis	
Description	**Unit**
1. Growth analysis	Sample
Microwave Digestion (Milestone Model: UltraWAVE)	
Description	**Unit**
1. Microwave Digestion UltraWave for ICP-MS	Sample
2. Microwave Digestion UltraWave for ICP-AES	Sample
Surface Analyzer (Physisorption and Chemisorption)	
Description	**Unit**
1. Physisorption-BET (Surface area)	Sample
2. Physisorption-Isotherm (Surface area and porosity meter analyzer)	Hour
3. Chemisorption-Static volumetric chemisorption	Sample
4. Chemisorption-Temperature program (Oxidation/Reduction/Desorption)	Sample
Nanosizer (Dynamic light scattering : DLS)	
Description	**Unit**
1. Particle size analysis (For water dispersion sample)	Sample
2. Particle size analysis (For solvents and oil dispersion sample)	Hour
3. Zeta potential (For water dispersion sample)	Sample
4. Zeta potential (For solvents and oil dispersion sample)	Sample
Electron Probe Microscope Analyzer (EPMA)	
Description	**Unit**
1. Operation time	Hour
2. Imaging	Picture
3. Elemental analysis-Line scan/Point scan/Area scan/ Mapping	Picture

Canabis Analytical Testing Laboratory (CATC)	
Description	**Unit**
1. พืชกัญชากัญชงแห้ง (วัตถุดิบ) (Dried Cannabis/Hemp, Raw materials)	
- การทดสอบหาปริมาณสารสำคัญ (Cannabinoids Testing)	Sample
- การทดสอบหาสารเคมีกำจัดศัตรูพืชตกค้าง (Pesticide Analysis/Screening)	Sample
- การทดสอบหาปริมาณสารพิษจากเชื้อรา (Mycotoxins Analysis : Aflatoxin B1, B2 G1, G2, Ochratoxin A)	Sample
- การทดสอบหาปริมาณโลหะหนักตกค้าง (Heavy Metals Analysis : As, Hg, Pb,Cd)	Sample
- การทดสอบหาสารเทอร์ปีนเชิงคุณภาพ (Terpene Profiling)	Sample
- การทดสอบหาเชื้อจุลินทรีย์ปนเปื้อน (Microbial Contamination)	Sample
- การหาปริมาณความชื้น (Moisture Content)	Sample
2. สารสกัดกัญชากัญชง (Cannabis/Hemp Extraction)	
- การทดสอบหาปริมาณสารสำคัญ (Cannabinoids Testing)	Sample
- การทดสอบหาปริมาณตัวทำละลายตกค้าง (Residue Solvent Analysis)	Sample
- การทดสอบหาสารเคมีกำจัดศัตรูพืชตกค้าง (Pesticide Analysis/Screening)	Sample
- การทดสอบหาปริมาณโลหะหนักตกค้าง (Heavy Metals Analysis : As, Hg, Pb,Cd)	Sample
- การทดสอบหาเชื้อจุลินทรีย์ปนเปื้อน (Microbial Contamination)	Sample
Kratom Analytical Testing Laboratory	
Description	**Unit**
1. การทดสอบเชิงปริมาณ (Quantitative Analysis)	
- การทดสอบหาปริมาณสารสำคัญ (Mitragynine, 7-Hydroxy mitragynine)	Sample
- การทดสอบหาปริมาณโลหะหนัก (Heavy Metals Analysis : As, Hg, Pb,Cd)	Sample
- การทดสอบหาปริมาณความชื้น (Moisture Content)	Sample
- การทดสอบหาเชื้อจุลินทรีย์ปนเปื้อน (Microbial Contamination)	Sample
- การทดสอบหาสารเคมีกำจัดศัตรูพืชตกค้าง (Pesticide Analysis)	Sample
- การทดสอบหาปริมาณสารพิษจากเชื้อรา (Mycotoxins Analysis : Aflatoxin B1, B2 G1, G2, Ochratoxin A)	Sample
2. การทดสอบเชิงคุณภาพ	
- การทดสอบหาสารเทอร์ปีนเชิงคุณภาพ (Terpene Profiling)	Sample

Contact NCTC

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