# Our List of Services





Training & ersonnel Certification

Technology Division

Technology Division

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Technology Division

Your One-Stop Partner For Testing, Inspection, Calibration **Product Certification, Training &** Consultancy Services.

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### **Biological & Chemical Technology Division**

## Environmental Monitoring & Consultancy Services

#### Commercial / Light Industries

- Respirable dust / particles / microbes
- O , & CO , / CO level
- Hazardous/toxic gases/vapours
- Heavy metals contaminants & Organic contaminants
- Relative humidity, temperature & lighting
- Noise & vibration
- Radio-activity / Effluent compliance

#### **Environment Assessment / Consultancy**

- Conservation programme
- Accidental discharge/spillage
- Resource evaluation
- Impact studies & Environmental Baselines Studies
- Health science services / Monitoring programme
- ISO 14001 EMS

#### **Environmental Analysis**

- Indoor Air Quality, Ambient Air monitoring
- Cleanroom Air monitoring (Class 10 & Class 100)
- Source emission or Stack emission
- Industrial Hygiene monitoring
- Hydrogen sulphide, mercaptans, ammonia in sewerage air
- Drinking Water, Newater, RO Water, Trade
- Effluent, potable water, water storage tank cooling tower water, seawater, swimming pool water, ground water, industrial water, water for making concrete
- Volatile & Semi-Volatile Organic Compounds, Pesticides, PCBs, Toxaphene, Herbicides in water & soil
- Pharmaceuticals and Personal Care Products in
   Water
- Heavy metals in soil/sludge, soil contamination
- Toxicity characteristic leaching procedure (TCLP)
- Odour measurement

## Chemical & Microbiological Testing Services

#### **Building Materials and Chemical Analysis**

- Concrete, cement, sand, fly ash, silica fume, slag
- Refractory materials and Ceramics
- Polymer, Admixture
- Soil Treatment Chemicals, Timber
- Metal & metal alloys (ferrous and nonferrous metals such as steel, cast iron, brass, bronze, aluminum alloy, etc)
- Asphalt premix, bitumen
- Paint & coatings
- Tiles, Asbestos, Petroleum
- Metal Extraction of in-line and end of line products for use in contact with drinking water

#### **Building Materials Testing (Microbiological)**

- Algae & fungus resistance
- Toxicity evaluation of materials by tissue culture studies using Vero cells of African Green Monkey (PUB recommended SS 375 and BS 6920 standard)

#### Food and Water Microbiology Analysis

- Indicator bacteria (Total Plate Count, Total Coliform, Yeast and Mould Count, E. coli, S.aureus etc)
- Pathogens testing (Salmonella spp, Vibrio spp, Campylobacter spp, Listeria spp, Shigella spp, Clostridium spp, Yersina spp, E.coil 0157:h7, Bacillus cereus, Streptococcus, Pseudomonas aeruginosa, Male Specific (F+) & Somatic coliphage, Aeromonas, etc)
- Air and Surface Monitoring
- Legionella and standard plate count testing for cooling tower and water fountain

### National Environment Agency (NEA) appro ved laboratory for Legionella Testing

#### **Food Chemistry Analysis**

- Nutritional labelling
- Food contaminants (toxic metals, pesticides, etc)
- Determination of additives (colourings, alcohol, preservatives)
- 3 MCPD test for sauce and seasonings
- Vitamin A, Vitamin B1, Vitamin B12, Vitamin C
- Dietary Fibre
- Protein, Fat, Carbohydrate

#### **Toxin Testing**

- Aflatoxin & Mycotoxin Testing
- · Staphylococcal Enterotoxin Testing
- Bacillus Cereus, Diarrhoeal Enterotoxin Testing

#### Chemical Contaminants & Residue

- Antibiotics residues
- Antioxidant and preservatives
- Artificial Colouring
- Melamine
- Heavy metals
- For maldehyde

#### Phthalates Tests in Food & Packaging

- Bis(2-ethylhexyl) phthalate, (DEHP)
- Butylbenzylphthalate, (BBP)
- Dibutylphthalate, (DBP)
- Di-n-octylphthalate, (DNOP)
- Diisononylphthalate, (DINP)
- Diisodecylphthalate,(DIDP)

#### Pharmaceutical/Medical Products Analysis

- Heavy metals (mercury, arsenic, lead, copper)
- Microbial limits
- · Hygiene/sterility testing

#### Antibacterial Efficacy Studies

Detergent, sanitizer

## Food Hygiene Consultancy & Training Services

- Kitchen audits on food hygiene
- Food hygiene course (accreditied by WDA)

## Microcontamination Testing Services

### Ultrapure Water and Ultrapure Chemicals Testing

- Ultrapure water quality analysis in accordance with ASTM standard D5127
- ICP-MS for trace elemental analysis (34elements)
- · Ion chromatography (anions and cations)
- Assay for organic solvent
- Water content in organic solvent
- Total organic carbon (TOC)
- Total residue (ppb)
- Total bacteria count (colonies/100ml)
- Total particle counts (P/L)

## Airborne Molecular Contaminants (AMC) and Surface Molecular Contaminants Analysis (SMC)

- Cleanroom air or gas analysis in accordance with ISO 14644-8 and SEMI standard F21-95 AMC baseline study: MA, MB, MC, MD & MM etc.
- Determine the yield problem that correlated with AMC, their sources and effects on wafers
- Identify the AMC effects on Wafers through witness wafer analysis
- Particle identification on wafer surface
- Material outgassing analysis and evaluation by TD-GCMS

#### RoHS and REACH Compliance Tests

- Cadmium, Mercury, Lead, Chromium by ICP-OES
- Hexavalent Chromium by UV-VIS
- PBBs and PBDEs by GCMS-MSPhthalates analysis
- Other Hazardous Substances
- REACH SVHC items etc.

#### Green Label Testing

- Volatile organic compounds emission (VOCs)
- Formaldhyde emission
- Heavy metals

#### Failure Analysis (Surface Analysis)

- · Coating thickness measurement
- Electrical Testing by Curve Trace.
- Non Destructive Failure Analysis by X-ray Imaging and C-Scanning Acoustic Microscope(C-SAM)
- Destructive Failure Analysis by Decapping and Cross section.
- Surface Roughness Analysis by Atomic Force Microscope (AFM)
- Surface Analysis by SEM/EDX, FTIR, Focused lon Beam (FIB), Transmission Electron Microscopy (TEM), TOF-SIMS, XRF and AUGER Electron Microscopy

#### **Reliability Testing**

- · Temperature cycling, temperature humidity
- · Vibration, shock & drop test
- Combined temperature, humidity with vibration test
- Highly accelerated life testing (HALT) and stress screening (HASS)

### Micro-contamination Analysis for Microelectronic Devices

- Ion chromatography (anions, cations and organic acids)
- Non volatile residue (NVR)
- FTIR for silicon oil, phthalate and amide slip
- Liquid particle count (LPC & USLPC)
- Outgassing by static headspace GCMSD (SHS)
- Outgassing by dynamic headspace GCMSD (DHS)
- Particle analysis by SEM-EDX & Microscope
- Magnetic particle inspection (MPI)
- Electroless Nickel (EN) coating chemical composition by SEM-EDX
- Replicating film extraction of polishing deburring compounds
- Extractable metals (Cu & Sn) etc.

### Cleanroom Consumables and Packaging Materials Testing

- Cleanroom gloves finger cots, wipers and j jumpsuit cleanliness tests as per IEST standards
- Ion chromatography (anions, cations and
- organic acids)
- Non-volatile residue (NVR)FTIR for silicon oil, phthalate and amide slip
- Liquid particle count normal extraction (LPC)
- Eliquid particle Count normal extraction (EPC)
   Outgassing by static headspace GCMSD (SHS)
   Outgassing by dynamic headspace GCMSD

- ElectroStatic Discharge Testing (ESD)
- Surface resistance & Volume resistance

(DHS)

- Static decay test
- Tribocharge Electric generation testESD latch up tests, HBM & MM
- IC Assembly & packaging test
- ESD Garment
- -- Sleeve To Sleeve Resistance Test
- -- Point To Point Resistance Test
- ESD Wrist Strap
- -- Continuity Test and resistance Test
- -- Cuff Resistance Test-- Breakaway Force Test
- -- Connection Integrity
- -- Ground Cord Extendibility
- -- Bending Life Test
- ESD Work surface and Flooring Material
- -- Resistance-To-Groundable Point (Rtg) -- Point To Point Resistance (Rtt)
- ESD Foot Wear
- -- Resistance Test

### **Construction Technology Divison**

#### Structural & Integrity Testing Services

- Surface hardness (rebound hammer) test
- Ultrasonic pulse velocity test
- · Electromagnetic cover meter survey
- Penetration resistance (Windsor Probe) test
- Half cell potential measurement
- · Concrete resistivity measurement
- Impulse response test
- · Impact echo test
- Surface penetration radar survey
- Infrared thermography inspection
- Fibrescope inspection
- In-situ carbonation test
- In-situ tensile pull-out and shear tests on structural fixtures, lifting beams/hooks, architectural finishes and sprayed fire-proofing material
- Temperature and strain monitoring of mass concrete casting
- Inspection (noptic scan) on tempered glass
- · Water tightness and penetration test on joints for windows, curtain walls, precast panel, etc.
- Third party witness for household shelter air tightness test and blastdoor water tightness
- Third party quality assurance and quality control inspection on concrete/concrete products
- Structural instrumentation and monitoring during full scale load test
- Structural investigation
- Investigation of structural healthiness after fire incident / accidental impact
- · Visual inspection of buildings in collaboration with professional engineers and accredited checkers

#### **Geotechnical & Pavement Testing** Services

- · Laboratory soil test
- In-situ soil test
- Asphalt test
- Runway and pavement assessment
- Surface friction by Grip Tester
- Soil Investigation & instrumentation
- Ground penetration radar survey
- Parallel seismic
- Parallel seismic
- Electrical resistivity by Werner probe method
- Vibration monitoring
- Noise monitoring
- Helideck Testing

#### **Building & Construction Materials** & Product Testing Services

#### Polymer, Plastic and Composite Material Testing

- · Mechanical Properties (tensile, shear, tear, compressive, flexural, etc)
- Physical Properties (density, hardness, scratch
- · Optical Properties (colour, gloss, haze, etc)
- · Adhesion Properties (adhesion strength, peel strength, etc)
- · Chemical Resistance
- Durability (natural weathering, accelerated weathering, salt spray, humidity, abrasion)
- · Aging Behaviour (heat aging, temperature/humdity conditioning
- Creep Behaviour
- Material Characterisation (FTIR, TGA, SEM/EDX)
- Thermal Analysis (compositional analysis, glass transition temperature, polymer content, ash content)
- Fire and Toxicity Emission
- Sound Absorption Coefficient
- Root Penetration/Resistance
- Thermal Conductivity
- Solar Reflectance Index Accelerated Aging by Arrhenius Equation

#### AAC / ALC / Precast Normal Weight / Lightweight Concrete Block & Panel

- Dimensional Tolerance
- Density
- Compressive Strength
- Bending Tensile Strength
- Moisture Movement
- Thermal Conductivity
- Water Vapour Permeability
- Water Absorption by Capillary Action
- Total Water Absorption
- · Drying Shrinkage
- Non-Combustibility

#### Glass / Glazing (SGU/DGU/Low-E/Laminated) / Transparent Plastic / Solar Film

- Visible Light Transmission
- Visible Light Reflectance
- Solar Transmission
- Solar Reflectance
- Shading Coefficient
- Luminous Efficacy
- SHGC
- U-value
- UV Rejection
- Emittance

### Coated Roofing Sheet / Solar Panel / Facade Material /

- Daylight Reflectance (Total / Diffuse / Specular)
- Solar Reflectance
- Solar Reflectance Index
- Emittance

#### Building Board (Fibre-Cement / Gypsum / MgO / Calcium Silicate

- Density
- Flexural Strength (Wet & Equivalent)
- Moisture Movement
- Water Absorption
- Moisture Content
- Water Tightness / Water Impermeability
- Thermal Conductivity
- Non-Combustibility
- Humidified Deflection
- Thermal Shrinkage

#### Impact Strength & Robustness on Precast Concete / AAC / ALC Composite Lightweight Wall System

- Partition wall stiffness
- Surface damage by small hard body impact
- Resistance to damage by impact from a large soft
- · Resistance to perforation by small hard body impact
- Resistance to structural damage by impact from a large soft body
- Effect of door slamming
- Resistance to crowd pressure
- Lightweight anchorage pull-out

#### **Product Testing Services**

- · Waterproofing System
- Rubber Gasket
- Waterstop
- Composite Timber
- Paint & Coating
- Sealant
- CED Primer Blast Door Frame
- Wrought Iron Steel Gate
- Main Entrance Door
- Rubber
- Wood and Timber
- Geotextile
- Gypsum Board • Glulam
- Biomass Fuel / Wood Chips / Wood Pellets Vinyl Flooring
- Medical Devices

#### **Building & Material Consultancy Services**

- Tiling failures
- Cracking/shattering of glass
- · Painting failure
- Concrete degradation
- · Plastering failure
- Rising dampness treatment
- -- Materials selection
- -- Failure analysis
- -- Performance evaluation

- Building performance consultancy
- -- Facade & building maintenance/upgrading

- -- Renovation/upgrading audit

- Weathering of building stone

- Debonding/cracking of flooring

- · Materials consultancy
- -- Product research
- Ground engineering consultancy
- Structural appraisal consultancy
- -- Built environment consultancy
- consultancy -- Restoration & conservation consultancy
- Building Audit
- -- Pre-acquisition due diligence
- -- Periodic maintenance audit

### Mechanical & Maintenance

#### **Mechanical Testing** (metals, polymer, timber, textile)

- Hardness tests
- (Brinell, Rockwell, Vickers, Micro-hardness)
- Tensile, bend, shear, impact, compressive & flexural strength test
- Creep, fatigue, wear, stress rupture, tear slip & life cycle strength test
- Hydrostatic pressure test & flow measurement
- Vicat test, heat distortion test & stress relief test
- Mechanical testing for welder and procedure qualification test sample.
- Endurance test
- Vibration test
- Compress air pressure test
- · Moisture content measurement
- Aaina test

#### Product Performance and Evaluation

- Pump (centrifugal, vertical multi stage, etc)
- · Fire protection equipment (fire hydrant, hose reel, landing valve, breeching valve, fire extinguisher, layflat hose, etc)
- Scaffold system
- · Manhole frame & cover
- Tap & mixer
- · Pipe & fitting
- Furniture
- Sanitary ware (WC, bidet seat washer)
- Washing machine
- Solvent cement
- Timber door
- Ceiling Fan
- Personnel Protective Equipment (PPE) (Safety footwear, industrial safety helmet)
- Design and custom-made system for product reliability testing

#### **Metallurgical Services**

- Failure analysis
- In-situ metallography
- Analysis of heat treatment condition
- Ferrite & Surface coating measurement
- Corrosion rate prediction and analysis
- · Material identification (heat treatment process, material type & grade)

#### Maintenance Testing Services

- Infrared thermography
- Partial discharge / Ultrasound
- · Stress and strain analysis
- Vibration spectrum analysis
- Acoustic measurement & analysis
- Boundary Noise Monitoring (NEA requirements)
- -- Indoor Noise Monitoring (MOM requirements)
- -- Octave Band
- -- Personal Dosimetry (HCP, Health Conversion
- · Light Intensity measurements (Lux)
- Heat stress (Environmental and personal heat stress measurement)
- Air leakage test
- · Ionising and non-ionising radiation measurement
- Bollard pull
- Load Test
- Ultrasonic flow rate measurement
- Electro magnetic compatibility (EMC) studies
- Electrical power quality
- Preventive Maintenance Fumehood -- Face Velocity Grid Test
- -- Flow Visualization Test
- -- Light Intensity Test
- -- Noise Level Test
- -- Preventive checks of all piping, hoods and
- -- Preventive checks of all electrical systems

#### **Electrical & Electronics Services**

- Testing of appliances to Spring Consumer Product Safety requirement (approved lab for 18 categories
- PUB water efficiency testing for washing machines (WFLS)
- NEA Energy label for dryer
- IP (Ingress Protection against water) testing
- General product testing e.g. EBOPS (SS209)

#### **Calibration & Measurement Services**

- Pressure calibration
- -- pressure gauge, pressure chart recorder, transducer, transmitter
- · Mass calibration
- weighting balance, mass
- Force calibration
- -- compression machine, Universal Testing Machine, batching plant, load cell, force gauge
- · Hardess testing machine calibration, durometer calibration
- Extensometer calibration
- Torque meter, torque wrench
- Temperature calibration
- -- thermometer, thermocouple, RTD, digital temperature display, IR thermometer
- Temperature enclosure calibration
  - -- oven, furnace, freezer, chiller, bath, incubator
- Thermo-hygrometer / graph calibration
- Environmental Chamer / Humidity Chamber calibration
- Dimension equipment calibration
- -- gauge block, profile projector, small measuring tools, go and no-go gauge, thread ring / plug gauge
- Measurement Services using CMM & Scope
- -- Parts first article measurement, jigs and fixtures measurement, PCB boards, UT clad, blocks, cube mould
- NDT gauges / equipment, UT gauge, coating thickness gauge / foil
- Laser system measurement (linear, straightness, flatness, squareness
- · Electrical, electronic instrument calibration
- Sound Level meter calibration
- Tachometer / Stroboscope calibration
- · Optical Instrument calibration
- Flow meter calibration

#### **Non-Destructive Testing Services**

#### Radiographic Testing

- · Weldments, castings, forgings & tubes
- Pipelines, storage tanks & pressure vessels
- Electronic, electrical & mechanical components
- Structural steels

#### **Ultrasonic Testing**

- Flaw detection in welds, castings, forgings, plates, bars, tubes and machine components
- Thickness measurement
- Material characteristic through acoustic attenuation

#### **Eddy Current Testing**

- Flaw detection (crack, corrosion, de-bond)
- Metal sorting / Electrical conductivity
- · Coating, plating, cladding and thin sheet thickness measurement

#### Magnetic Particle Testing

- Surface and subsurface discontinuities e.g. cracks, seams & inclusions on ferromagnetic materials
- · Monitoring service flaws in bars, forgings, weldments, shafts and components

#### **Liquid Penetrant Testing**

- Surface discontinuities eg cracks, pinholes, laps and seams on non-porous and non-absorbing materials
- · Locating flaws in weldments, joints, tubings & castings

#### Other Specialised Techniques

- Post-Weld Heat Treatment (PWHT) -
- Stress Relieving / Pre-Heat
- Hardness Testing (Telebrineller / Digital Type)
- Holiday Testing (Spark Test)
- Vacuum Box Testing
- Ferrite Content Measurement
- Coating Thickness Measurement

#### **Aerospace Inspection Services**

- Federal Aviation Administration (FAA) repair station for NDT
- Civil Aviation Authority of Singapore (CAAS) approval for NDT
- · Approved Vendor by Pratt & Whitney Canada for Chip & Debris Analysis
- NADCAP accredited NDT inspection organisation for aerospace manufactured components

#### **Advance Non-Destructive Testing** Services

### Tube Inspection Services for Boilers and Heat

- **Exchangers** • Eddy Current Test (ECT)
- Remote Field Eddy Current Test (RFECT)
- Magnetic Flux Leakage (MFL)
- Internal Rotary Inspection System (IRIS)
- Near Field Eddy Current Test (NFT)

### Stroage Tank Inspection / Survey

- Magnetic Flux Leakage (MFL) for tank floor scanning
- 3D Image Profiling & Remaining Life Assessment
- Long Range UT (LRUT) on Annular Plate
- UTG / B-Scan on tank shell plates using remote
- Corrosion Mapping • Tank Settlement and Verticality Survey

#### Advanced Ultrasonic Testing

- Phased-Array Ultrasonic (PAUT)
- Time-of-Flight Diffraction (TOFD) · Creeping Head-Wave Inspection Method
- Corrosion Mapping of Buried Pipe/Lamp Post

- Advanced Radiographic Testing
- Computer Radiography (CR)
- Digital Radiography (DR) • Small Controlled Area Radiography (SCAR)

### **Other Advanced Techniques**

- Positive Material Identification (PMI) on ferrous/non-ferrous materials
- Remote Videoprobe/Borescope Inspection (RVI) - with internal defect sizing options
- Eddy Current surface scanning on base metal and welds

Ministry of Manpower approved Noise Monitoring Consultant

# **Testing Services**

### of controlled goods, e.g. ceiling fan, iron, oven, etc)

### Mechanical Technology Divison

## Safety & Reliability Management (SRM) Services

#### Safety & Reliability

- Safety Management Systems
- Training and workshops
- Gap analysis and development of safety management processes
- Procurement support and supplier evaluation

#### Safety Engineering & Consultancy

- Safety planning
- · Hazard analysis and risk assessment
- · Safety requirements and validation
- Safety audits
- Safety case development

#### Independent Safety Assessment (ISA)

#### **Electromagnetic Capability**

- EM management planning
- · Assesment of complex installations
- Control Plans
- Audits
- Business process solutions
- On Site Measurement
- EMC & HIRF trials
- Assessment and Certification
- Surveys
- EM Modelling
- Radiation Hazard

#### **Engineering Consultancy Services**

- Plant and Equipment Condition Assessment
- Forensic Engineering and Expert Witness
- Materials and Design Consultancy
- Power Engineering
- Strategic Asset Management
- -- Electrical Plant and Equipment
- -- Rotating Plant
- -- Gas and Steam Turbines
- -- High Temperature Plant
- -- Earthing Systems
- -- Lightning Protection Systems

#### **Quality Assurance Services**

#### Inspection, Consultancy & Expediting Services

- Independent / 3rd Party Inspection Agency
- -- Certified Welding Inspector
- -- API 510/570/653 Authorized Inspector
- -- NACE Certified Painting/Coating Inspector
- Singapore Accreditation Council (SAC) –
   Accredited Inspection Body (ISO/IEC 17020)
- -- Central Alarm Monitoring Stations Inspection
- -- Pressure Vessel Inspection (including aboveground storage tank, power & process piping)
- -- Structural Steelworks Inspection
- -- Technical Auditor for MOM Scheme for Extension of Statutory Inspection Period of Pressure Vessels
- MOM Approved 3rd Party Inspection Agency (Local) for Fabrication Survey of Steam Piping
- Inspection of Air Receivers as per MOM Requirement
- Inspection of Diesel Storage Tank as per SCDF's Requirement

- Inspection of Portable Storage Tanks for Transportation of Petroleum and Flammable
- Inspection Survey of the Chillers & Condenser Water Pipelines and Suspended Ceiling in Commercial & Office Buildings
- Pipeline Integrity Assessment of the Oil & Gas Plant and Terminal Facilities
- Risked Based Inspection (RBI)
- Consultancy on Welding, Quality Control/ Assurance & Testing/Inspection
- -- Preparation of Welding Procedure Specification by Welding Engineer
- -- Qualification Test of Welders & Welding Procedures
- -- QA/QC personnel for Owners & Contractors
- -- Product Inspection & Certification required by Vendor
- -- Expediting & Pre-Shipment Inspection
- -- Failure Analysis on Materials for Industrial Equipment
- -- Plant Equipment Remaining Life Assessment
- -- Tower Cranes Inspection
- Independent / External Auditors
- -- Factory Auditor for Contractor's Quality System, Workshop Facilities & QA/QC Personnel
- -- Independent Auditor recognised by BCA to issue Certificate of Assessment for the re-use of Steel Strutting System and sheet piles for Earth Retaining or Stabilizing Structures as per BC1: 2012

#### Welder Course & Certification

- MOM Approved Test Centre for Welder Certification in the Marine Industry for Lower Levy Conversion
- BCA Approved Training and Testing Centre (ATTC) for Upgrading of Workers' Skills in the Construction Industry
- -- Skills Evaluation Certificate (Knowledge), or SEC (K)
- -- Construction Registration of Tradesman/ Foreman (CoreTrade)
- -- Multi-Skilling Scheme
- -- Continual Educational Training (CET)
- SWS-CWQS Approved Welder Qualification Test Centre (WQTC) for Welder Qualification in the Oil, Gas and Petrochemical Industries

### **Training & Personnel Certification**

#### **Training Courses**

### Non-Destructive Testing (NDT) Training Courses

- Introduction to NDT
- Eddy Current Testing (ET) Level I & II
- Penetrant Testing (PT) Level I & II
- Magnetic Particile Testing (MT) Level I & II
- Radiographic Testing (RT) Level I & II
- Radiographic Film Interpretation (RI)
- Radiation Safety (RS)
- Ultrasonic Testing (UT) Level I & II
- Level III Refresher Course
- Thermography
- Advanced NDT
- Visual Testing Level II
- Phased Array Ultrasonic Testing
- Certified Coating Inspector Level I & II

SETSCO is a BS EN ISO 9001 certified PCN training center and approved by the British Institute for NDT (BINDT)

#### Welding Technology Courses

- American Welding Society (AWS) Certified Welding Inspector
- Visual Inspection of Welds
- Introductory Welding Metallurgy
- Metal joining & Cutting Processes
- · Safety in Welding & Cutting Processes
- Structural Welding Design

#### American Petroleum Institute (API) Courses

- API 510 Pressure Vessel Inspector
- API 570 Piping Inspector
- API 571 Supplemental Inspection
- API 653 Aboveground Storage Tank Inspector

#### **Food Safety Courses**

 WSQ Food Hygiene Course (Accredited by Singapore Workforce Development Agency (WDA)

#### **Short Courses**

#### **Construction Technology**

- Non-structural cracks & crack repair methods
- NDT for concrete structures
- Self-levelling concrete
- Electro-chemical repair methods for concrete structures

#### Structural Engineering

- Design of pre-stressed concrete for buildings
- Lesson learnt from failure of concrete structures
- Structural cracks in buildings
- Strengthening of r.c.c structures

#### Stainless Steel

- Stainless steel for buildings & structures
- Stainless steel for water & wastewater industries
- Stainless steel for refining & petrochemical industries
- High performance stainless steel for chemical & process industries
- · Material engineering workshop

#### **Other Training Courses**

- Heat Treatment
- Pressure Equipment Inspection
- Protective Coating Inspection

#### **Certification Examinations**

- NDT Employer based certification using SNT-TC-1A Level I, II & III in ET, MT, PT, RI, RT & UT
- British Institute of NDT (BINDT) Personnel Certification for NDT (PCN)
- Level I, II & III for Aerospace (ET, MT, PT, RT & UT), Welds (RI, RT & UT) & Multi Sector (PT & MT)
- National Aerospace Standard (NAS) 410 Certification Level I, II & III for Aerospace (ET, MT, PT, RT & UT)
- Civil Aviation Authority of Singapore (CAAS) Practical Test for NDT personnel taking N11 (PT), N12 (MT), N13 (ET), N14 (UT) & N15 (RT) exam.
- American Society for NDT (ASNT) Level III
- AWS Certified Welding Inspector (CWI) & AWS Senior Certified Welding (SCWI) Inspector
- API 510 Pressure Vessel Inspector
- API 570 Piping Inspector
- API 653 Above Ground Storage Tank Inspector
- Thermography Level I & II