IFTS's CONTRIBUTION TO FRENCH AND INTERNATIONAL ACTIVITIES OF STANDARDISATION AND CERTIFICATION

I – INTRODUCTION

IFTS is a Technical Research Centre, an association which is non-profit making and self financed. Because it operates as an interface between university research and filter equipment manufacturers/users, IFTS undertakes activities which help to improve understanding and communication between these fields of expertise.

Furthermore, because of its multi-industry competence, IFTS covers a wide range of industrial systems from chemical to mechanical, nuclear to aeronautical, food to environment

In 1986 the Institute started four specific activities to make available to industry efficient tools for greater industrial competitivity. These are the research and development of test methods and equipment, standardisation, certification of its services according to ISO 17025, and certification of filtration products.

This document describes normative and paranormative work undertaken by the Institute at national and international levels.

Also included is a summary of the involvement in multiclient research and round robin tests which IFTS has organised or in which it has participated with other professionals. This is undertaken to validate standards and operating protocols before they are published.

II – STANDARDISATION

II.1. FORMULATING A NEW SERIES OF FRENCH STANDARDS: NF X 45 "FILTRATION OF LIQUIDS AND SOLID-LIQUID SEPARATION "

Formation and chairing of committees, prenormative research and writing of draft standards for the following new series:

NF X 45-100	Tests of porous membranes (5 standards)
NF X 45-300	Tests of cartridge filters (11 standards)
NF X 45-400	Tests of granular filter media (5 standards)
NF X 45-600	Questionnaire for the specification of solid-liquid separation equipment (1 standard)

II.2. EFFICIENT CONTRIBUTION TO THE DRAFTING OR REVISION OF STANDARDS

II.2.1. FRENCH STANDARDS (NF)

NF E 48-650 670 & 680	Control of particulate contamination and filtration of hydraulic fluids – Cleanliness of components (chair of committees E 48 U and E 37 D)
NF E 37-300	Tests of filters for internal combustion engines
NF X 11-500	Sieving and other methods of particle size analysis
NF X 42-200	Biotechnologies : equipment for the clarification of liquids
NF L 41-100,120 and 130:	Particulate contamination of aircraft hydraulic fluid and fuel circuits.

II.2.2. INTERNATIONAL STANDARDS (ISO)

Organizer of the international expert meetings for ISO TC131/SC6 and its WGs, in May 2000 in Toulouse and for ISO TC22/SC7/WG3 and ISO TC70/SC7 in October 2000 in Bordeaux.

French delegation chief and active contributor to the work of following committees :

TC 131/SC6 : Fluid power systems – Contamination control, filtration and cleanliness of components

Project leader for the elaboration of standards ISO/CD 16009 **(efficiency of off-line filters)**, ISO 3968 (**head loss** of hydraulic filters), ISO TR 16144 (**certification protocol of suspensions** NIST SRM 2806 for calibration of particle counters per ISO 11171) and of the "method to relate cleanliness of parts, components, fluids and systems".

TC 22/SC6 : Tests of fuel filters for internal combustion engines

Inventor of ISO TR 13353(94) : method for testing efficiency of fuel, petrol and diesel filters.
Project leader of WG2 TC22/SC6/WG2 for the drafting of ISO 12345 on **cleanliness of injection equipments for combustion engines**.
Responsible for the research and development of the new ISO 16332 method for the measurement of the **water separation efficiency** of diesel fuel filters.

TC20/SC10 : Components and circuits of aeronautical fluids

Project leader of WG8 for the revision of ISO 11218 on cleanliness class and code of aeronautical fluids (to replace NAS 1638) and of ISO 11217 for the specification of sampling conditions.

TC22/SC5 : Cleanliness of automotive components

Project leader of WG12 for the drafting of ISO 16232 parts 1 to 10 on cleanliness of automotive components.

TC 70/SC7 : Tests of lubricating oil filters for internal combustion engines

Project leader of WG2 for the drafting of ISO 4548-11 and 13: tests of self cleaning and combined lubricating oil filters for internal combustion engines.

TC 24/SC4 : Size analysis of powders and counting of particles in liquids

II.2.3. EUROPEAN STANDARDS (CEN)

TC 272 : Upsetting of the TC (Technical Committee) and of WGs (Working Groups) on tests of **membrane filters.**

TC 233 : Processes for biotechnologies: equipment for clarification and solid-liquid separation (chair of WG)

TC 164/WG13 : Drinking water treatment. Chairman of WG13/AHG6 and project leader of the drafting EN 13443-2 on tests of cartridge filters used inside buildings

TC 19/WG31 : Drafting EN 12662 for measuring solid contamination level of diesel fuels.

III – ORGANISATION OR PARTICIPATION IN ROUND ROBIN TESTS

III.1. FRENCH ROUND ROBIN

III.1.1. AFNOR COMITEE E48U (hydraulic fluids particulate contamination)

NF E 48-652: gravimetric analysis
Processing of round robin test data including 12 laboratories to validate the new protocol.

NF E 47-658: automatic counting of particles in hydraulic fluids
- Qualification of automatic counting by light absorption.

- Draft of the operating procedure, preparation of 800 samples of ACFTD in standard mineral oil and statistical computing of data (12 laboratories) to include in the standard the variation coefficient as a function of the number of particles.

III.1.2. AFNOR COMITEE X45C

NF X 45-401: test of granular filtering media (GFM)

- Conditioning of 80 batches of GFM (sand, activated carbons) for 7 labs and validation of three methods per EN 12 902 and NF X 45-402, with determination of statistic parameters of the tests.

III.1.2. GFC / LM6 (Group for the Development of tests of fuels and lubricants for engines)

- Conditioning of 40 batches of ISO MTD in lubricating and standard oils and circulation to 7 labs.

III.2. EUROPEAN ROUND ROBINS (CEN)

Preparation and distribution to 18 labs of 320 batches of 1L each containing two qualities of diesel fuels with 6 levels of particulate contamination in order to validate the EN 12662 standard.

III.3. INTERNATIONAL ROUND ROBINS (ISO)

III.3.1. For TC 22/SC6: AUTOMOTIVE FUEL FILTERS

Particle size analysis using the laser diffraction technique to validate a new test powder (ISO 12103-2), proposed for the certification of automotive oil and diesel filters. Conditioning of 100 batches circulated to 12 labs worldwide and statistical computing of data.

Organisation and processing of data of a round robin to validate ISO 19438 and to compare its results with these of ISO TR 13353(94) and ISO TS 13353(00) and process of test data.

III.3.2. For TC 70/SC6: LUBRICATING OIL FILTERS

Elaboration of a new oil filter test standard (ISO 4548-12) and organiser of a round robin to measure particle size distribution of test powders ISO 12103-2 by laser diffraction.

Organiser for TC70/SC6 of the round robin for the validation of new protocols for ISO 4548 parts 4, 10 and 12.

III.3.3. For TC 131/SC6: HYDRAULIC FLUID CONTAMINATION CONTROL

Participation in round robins for the validation of the new multipass test (ISO 4572) revised in 1996 from the French procedure NF E 48-680 drafted by IFTS and renumbered ISO 16889 in 1998.

Participation in round robins for the validation of the standards ISO 11171 and 11943: "on line calibration and use of automatic particle counters ".

Organisation of a round robin to validate ISO 16009 on efficiency of off-line filters.

Participation in tests for the validation of revised standards ISO 2941 (determination of burst pressure of hydraulic fluid filters), ISO 11500 (counting of particles by light absorption) and ISO 4405 (gravimetric analysis).

Participation in an international expert group drafting the specification for the preparation of APCs calibration suspension standard (SRM 2806.a) and its certification by NIST.

Building and validation of a preparation loop to fill in 350 flasks for the NIST SRM 2806-b.

IV – ACTIVE PARTICIPATION IN FRENCH GROUPS OF EXPERTS

IV.1. SITELESC (Electronic Tube and Semi-Conductor Industry Association) : Development of a method for evaluating filterability and particulate contamination of photoresists

IV.2. GFC / LM6 (Tests of fuels and lubricants for engines) : Development of a method for controlling the cleanliness level of engine lubricating oils.

IV.3. SFSTP (French Society for Pharmaceutical Science and Technology) : Drafting of a validation guide for sterilising filters used in the pharmaceutical industry.

V – CERTIFICATE OF QUALITY

V.1. REGISTERED BY RNE (Test National Network) and COFRAC (French Committee for Accreditation of Laboratories) :

Registered for particle counting, for clean sampling bottles conditioning and for 6 filter tests (efficiency and capacity, integrity and differential pressure vs flowrate) since 1988 according to EN 45-001.

First worldwide filter test center to be accredited according to ISO 17025 in October 2002.

V.2. OFFICIAL DGA LABORATORY (French Ministry of Defence) :

In 1990, appointment of IFTS by the French air and ground Forces and of the Navy have appointed IFTS as the center certifying performance of the filters used by all three armed forces.

V.3. MEMBER OF THE EUROPEAN NETWORK OF THE BCR (European Bureau of References) :

Participation in the settlement of particulate reference materials through particle size measurement using the microscope and image analysis, the COULTER principle and the high precision micro-sieving techniques.

V.4. FDA REGISTRATION :

IFTS has been notified by the US FDA (Food and Drug Administration) in 1997 for the particulate contamination control of injectable solutes upon USP 23 (United States Pharmacopæ) and in 2002 for the particle size analysis of powders using a microscope and image analyser.