Petroleum Testing Equipment | High Temperature Baths | Low Temperature Baths | Accessories | Calibration & measuring

est. 1878 Tamson

Test & Measurement
Instruments

Company and Product Overview

Tamson Instruments B.V. 2024 1.0

Dia 1

1	Ha Roland, the oranje sectie 'calibration & measuing kan vervallen, die komt geheel niet terug in de presentatie. mvdspek@tamson.nl; 19-7-2024
2	Tevens, wat het idee niet dat we Petroleum Testing Equipment zouden hernoemen naar Energy Testing Equipment? mvdspek@tamson.nl; 19-7-2024

Test & Measurement Instruments

Content of Presentation

Tamson Instruments B.V.

- History
- Organisation
- Location
- Distributors

3

Tamson product portfolio

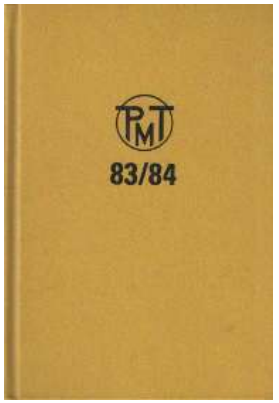
- ASTM Equipment
- Circulators / Water baths
- Accessories

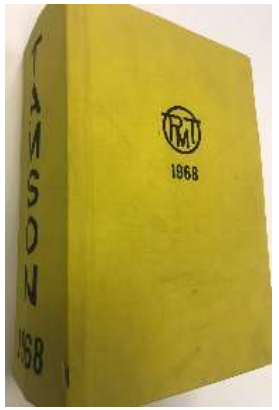
Dia 2

3 Geldt voor alle sheets, ik vind lettertype te klein voor een presentatie.
mvdspek@tamson.nl; 19-7-2024

Tamson History

- P.M. Tamson B.V. founded in 1878 by Mrs. Tamson in The Hague, The Netherlands.
- Distribution of laboratory supplies initially.
- From 1950s also manufacturing Tamson thermostatic baths and circulators.
- In 1992 sold to Fisher Scientific, USA.
- Fisher sold assets of manufacturing of Tamson Instruments in August 1998 – Fisher kept sales of general laboratory supplies.





Tamson History

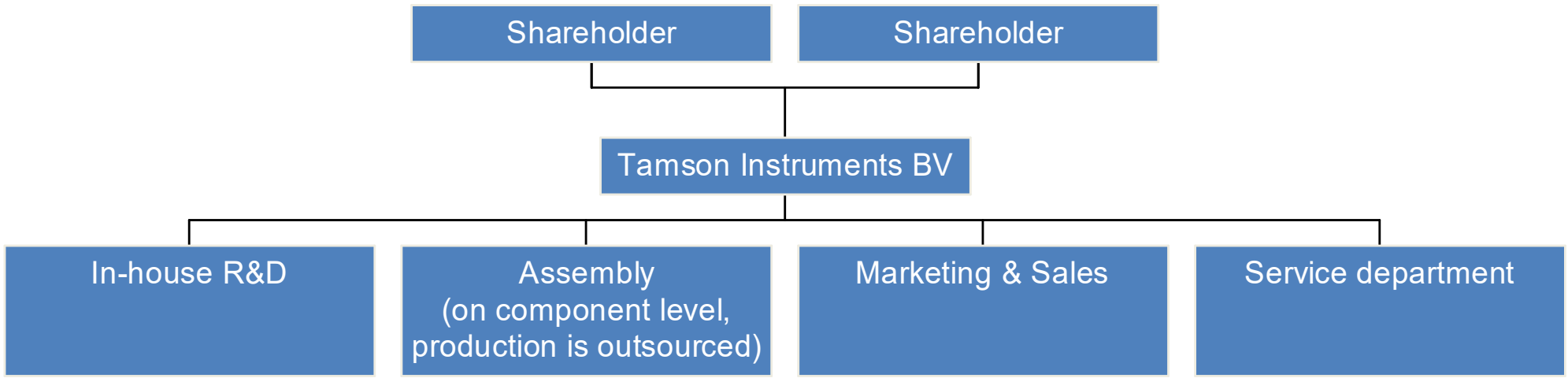
- Assets were put in new company – Labovisco bv.
- In 2004 Labovisco is renamed in Tamson Instruments B.V.
- In 2008 Tamson moved to a new building in Bleiswijk, The Netherlands.

Tamson History

- Since 2011 R&D for equipment to test petroleum products, liquid fuels, and lubricants.
- Tamson is an active member of ASTM ® and Energy institute ®.
- In 2016 introduction of first fully automated instrument: TFBT (ASTM D2068 & IP 387).
- In 2017 Tamson received ISO 9001:2015 accreditation.
- In 2020 we launched a new automated viscosity system “AKV EASY”

TAMSON INSTRUMENTS ORGANISATION

- Tamson Instruments B.V. is a privately-owned company with two shareholders who both work for Tamson Instruments B.V.
- Profit is invested in R&D.



Tamson Location

- All instruments are manufactured in The Netherlands.
- The Netherlands has a history of being a technologically advanced and innovative country. The same philosophy applies to Tamson.

- Tamson is located in Bleiswijk, in the province ‘South-Holland’.
- Bleiswijk is a relative small town, close to Rotterdam.
- Both Amsterdam Airport and Rotterdam Airport are nearby the office.

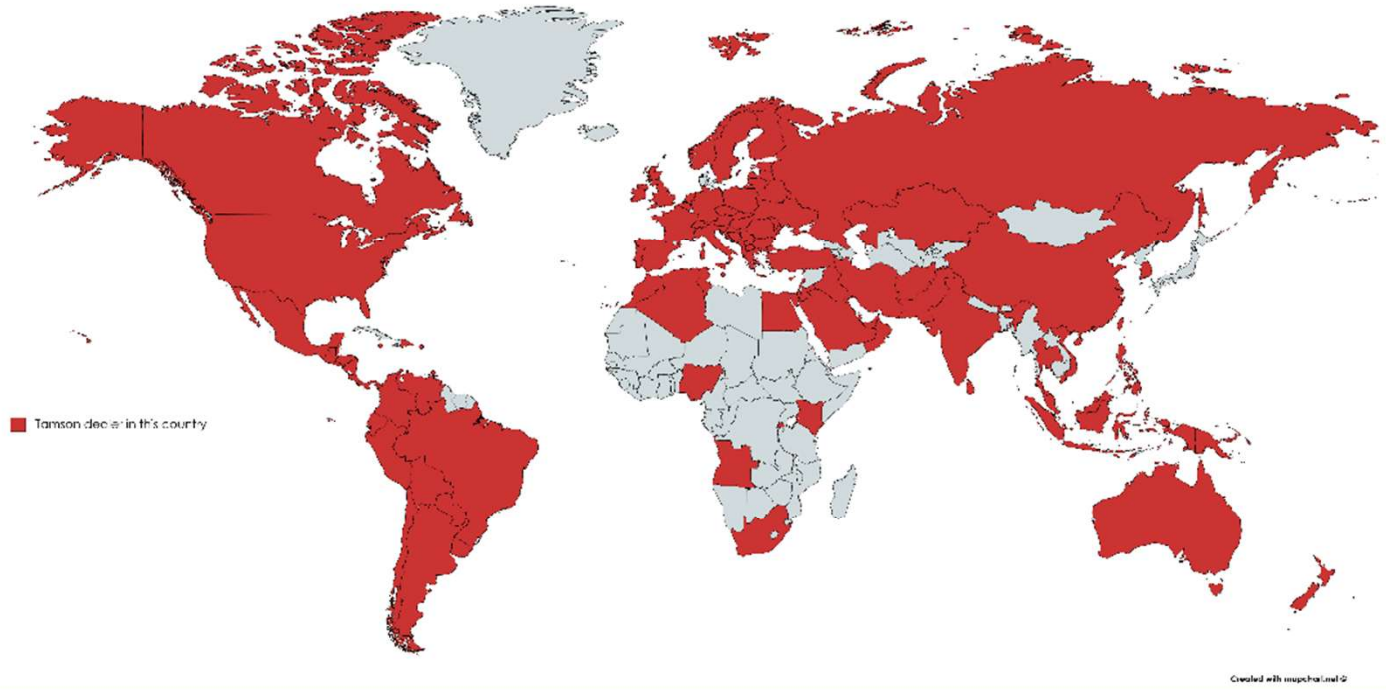
Dia 7

4 Er was hier een animatie met een pijl waar we in Nederland zitten.
mvdspek@tamson.nl; 19-7-2024

Tamson Test & Measurement Instruments

Tamson Location

- Tamson sells its products via a network of 60 appointed distributors who are trained to sell and service Tamson products.
- Almost in every country where Tamson is allowed to export, you will find a Tamson product, even on Antarctica.



est. 1878 Tamson Test & Measurement Instruments

Tamson Instruments References

ExxonMobil · Total · Petronas · Repsol · SGS · Cepsa · Esso · AkzoNobel · Lukoil

Hindustan Petroleum Corp. Ltd. · Chevron · Petrofac · Gazprom · Shell · bp · ASD · VSL Dutch Metrology Institute · Inspectorate

Башнефть · Hyundai · Enaer · Petroecuador · KBC · AmSpec · Lubrizol · Idemitsu · Pertamina

intertek Total Quality. Assured. · Ciatec · Petroperu · Cabin Cargo Control · Motor Oil (Hellas) Corinth Refineries S.A. · Eskom · MOL Group · PDVSA · Hunt Refining Company

Socar · Tesoro · PTB Physikalisch Technische Bundesanstalt · IBMETRO · Deutsche Ölwerke Lubmin · S-Oil · ENAR Petrotech Services (Pvt) Ltd · ENAP · eog resources

5 Ik zou het erg gaaf vinden als we Tesla en Nvidia toevoegen hier. Dat zijn klanten voor D1384, dan zou Lukoil (Russisch en Gazprom er beter uit kunnen.
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Tamson est. 1878 Test & Measurement Instruments

Tamson Product Portfolio

ASTM Equipment for Energy Testing

- ✓ Viscosity (ASTM D445, D2162, D2170, D2171)
- ✓ Corrosion Baths (ASTM D130, D849, D1838, D7671, etc.)
- ✓ Density by Hydrometer (ASTM D1298, D287, D1122, D1429, D3142, D6822)
- ✓ Carbonizable substances in white mineral oil (ASTM D565, D612)
- ✓ Water and Sediment (ASTM D1796, D4007, etc.)
- ✓ Density by Pycnometer (ASTM D70, D1217, D1480)
- ✓ Centrifuge for Sediment Tests (ASTM D91, D1796, etc.)
- ✓ Filter Blocking Tendency (ASTM D2068)
- ✓ Ageing Bath Dupont Testing (ASTM D6468)
- ✓ Total Sediment in Residual Fuels (ASTM D4870)
- ✓ Cold Soak Filterability Tests (ASTM D7501)
- ✓ Sediment by Filtration of Crude Oil (D4807)
- ✓ Manual adjustable Cloud and Pour Point (D97, D2500, D6922)
- ✓ Freezing point of Aqueous liquids (D1177, D852, etc.)
- ✓ Oxidation for Engine Oils (CEC L-109-14, CEC L-48)
- ✓ Corrosion Test for Engine Coolants in Glassware (ASTM D1384, D8040)
- ✓ Phosphorus in Gasoline (ASTM D3231)
- ✓ Foaming characteristics of lubricating Oils (ASTM D892, D6082) M)

Circulators and water baths

- ✓ Heating
- ✓ Cooling

Accessories

- ✓ Bath Fluids
- ✓ Accessories for viscosity measurements
- ✓ Digital Contact Thermometer TT3B
- ✓ Reference Standards (viscosity, TBN, TAN, flash point, distillation, CRM)

TV4000

ASTM D130
TC16

TLC15-5

Foaming

ASTM
D4807

TLB50

TV4000-
AKV EASY

TFBT

ASTM
D70

DENSITY

Test & Measurement Instruments

ASTM Equipment Viscosity Baths

Petroleum Testing Equipment

- The test method specifies a procedure for the determination of the kinematic viscosity of liquid petroleum products, both transparent and opaque, by measuring the time for a volume of liquid to flow under gravity through a calibrated glass capillary viscometer.
- ASTM D445: Kinematic Viscosity of Transparent and Opaque Liquids.
- ASTM D2162: Standard Practice for Basic Calibration of Master viscometers and Viscosity Oil Standards.
- ASTM D2170: Kinematic Viscosity of Asphalts.
- ASTM D2171: Viscosity of Asphalts by Vacuum Viscometers.

TV4000

TV4000

TV4000

TV4000

TV4000

TV4000

TV4000

TV4000

6 Wat wil je de meeste plaatjes slaan nergens op, behalve de TV4000AKV EASY. Is een groter plaatje van bijvoorbeeld een rij TV4000 niet beter?
mvdspek@tamson.nl; 19-7-2024

ASTM Equipment Viscosity Baths

Petroleum Testing Equipment

- **ASTM D445 & D2170:**
  - TV2000 and TV4000, robust, well-known and sold thousands world-wide
  - TV12LT for sub-ambient determination (jet aviation fuel)
  - Low-cost models TV2500 and TV3500
- **ASTM D2162: Master viscosity**
- **ASTM D2171:Digital vacuum pump (TVS) with TV4000**

TV4000

TV12LT

TV3500

TV16000

ASTM D2171

Tamson Viscosity Baths

ASTM Equipment Automated Viscosity

Petroleum Testing Equipment

TV4000AKV EASY

- The Tamson AKV Easy system is able to determine kinematic viscosity automated according to ASTM D445, IP 71, and ISO 3104
- Automated measurement, manual filling and cleaning
- Optionally automated rinsing (under development)
- Single or dual channel
- User-friendly touch screen
- Database (up to 254 results)
- Test configuration can be customized
- Use of very stable Tamson bath
- Ubbelohde viscometers with a range from 0.3 up to 10,000 mm²/s (cSt)

Automated Kinematic Viscosity

ASTM Equipment Corrosion Baths

Petroleum Testing Equipment

- This test method covers the determination of the corrosiveness to copper or silver of petroleum products or other hydrocarbons.
- ASTM D130: Corrosiveness to Copper from Petroleum Products by Copper Strip Test
- ASTM D849: Copper Strip Corrosion by Industrial Aromatic Hydrocarbons
- ASTM D7671: Corrosiveness to Silver by Automotive Spark–Ignition Engine Fuel–Silver Strip Method
- ASTM D1838: Copper Strip Corrosion by Liquefied Petroleum Gases (LPG)

Copper Corrosion of Petroleum Products

Test & Measurement Instruments

ASTM Equipment Corrosion Baths

Petroleum Testing Equipment

- ✓ Range from +5°C .. +250°C
- ✓ Standard drain
- ✓ Six positions
- ✓ Holders for test pressure cylinder
- ✓ Holders for test tubes
- ✓ All necessary accessories are supplied by Tamson.
- ✓ Can also be used as circulator
- ✓ Nine positions optional (P/N 03T2311)
- ✓ 18 or 63 positions possible with TC40

TC16 D130

TEST CYLINDER

TEST TUBE HOLDER

TC16 VIEW

TC40
D130

Copper Corrosion of Petroleum Products

ASTM Equipment Corrosion Baths

Petroleum Testing Equipment

- ✓Range from +5°C .. +250°C.
- ✓Standard drain and cooling coil.
- ✓Can also be used as circulator.
- ✓Complete set-up P/N 00T2015 (230V) or P/N 00T2016 (115V) is delivered with:
  - ✓TC40 bath
  - ✓Levelling platform.
  - ✓Six sets of glassware (flask P/N 31T2012 + condenser P/N 31T2011).
  - ✓Two boss heads and six clamps to keep glassware in upright position.

ASTM D849
APPARATUS

Corrosion by Industrial Aromatic Hydrocarbons

ASTM Equipment Corrosion Baths

Petroleum Testing Equipment

- ✓ Range from +5°C .. 250°C
- ✓ Standard drain
- ✓ Six positions standard
- ✓ All necessary accessories for above mentioned methods are supplied by Tamson.
- ✓ Can also be used as circulator
- ✓ Nine positions optional (P/N 03T2311)
- ✓ 18 positions with TC40 (P/N cover 03T2313)

SILVER
CORROSION

Silver Corrosion of Petroleum Products

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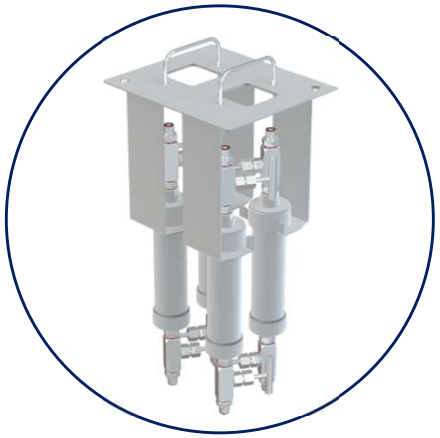
ASTM Equipment Corrosion Baths

Petroleum Testing Equipment

- ✓ Range ambient .. 80°C
- ✓ Up to four positions
- ✓ Cover with holders for test cylinder
- ✓ Holes in cover, to check for LPG leakage
- ✓ Standard drain & overflow outlet
- ✓ Designed to work at 37.8°C without an external chiller
- ✓ All necessary accessories are supplied by Tamson.

TB D1838
LPG



POSITION FOR FOUR
CYLINDERS

Copper Corrosion of LPG

ASTM Corrosion Test for Engine Coolants

Petroleum Testing Equipment

- ASTM D1384: Corrosion test for Engine Coolants in glassware. The ASTM D1384 test method covers a beaker-type procedure for evaluation the effects of engine coolants on metal specimens. Specimens of metal are immersed in aerated engine coolant soolutions for 336 hours at 88°C. The weight change in the specimen is observed.
- Tamson supplies a TC40 complete with all the glassware and six flow meters required for this test. The TC40 offers six positions and has a range from ambient … +250°C.
- Optionally, we have a three position apparatus available.

ASTM D1384 APPATUS

Corrosion Test for Engine Coolants in Glassware

ASTM Equipment Density by Hydrometer

Petroleum Testing Equipment

- This test method covers the laboratory determination using a glass hydrometer of the density, relative density, or API gravity of crude petroleum, petroleum products, or mixtures of petroleum and nonpetroleum products normally handled as liquids.

  - ✓ Solid/firm rack
  - ✓ Clear view on hydrometer
  - ✓ Easy cleaning & drainage
  - ✓ High quality glass
  - ✓ Spill tray
  - ✓ Double wall cylinders
  - ✓ Cooling circulator
  - ✓ Range from +5°C .. +60°C (Optional ….120°C)
  - ✓ Additional rack can be used, to get a six position apparatus.
  - ✓ Especially for crude oil

D1298 APPARATUS

Apparatus for ASTM D1298

ASTM Equipment Density by Pycnometer

Petroleum Testing Equipment

- ASTM D70 covers the determination of the relative density and density of semi-solid bituminous materials, asphalt cements, and soft tar pitches by use of a pycnometer.
- ASTM D1480 and ASTM D1217 cover the determination of the relative density and density of viscous materials by Bingham Pycnometer.

ASTM D70 TC16

PYCNOMETERS

TV2000 FOR D1480

ASTM D70 & ASTM D1480

ASTM Equipment Carbonizable Substances

Petroleum Testing Equipment

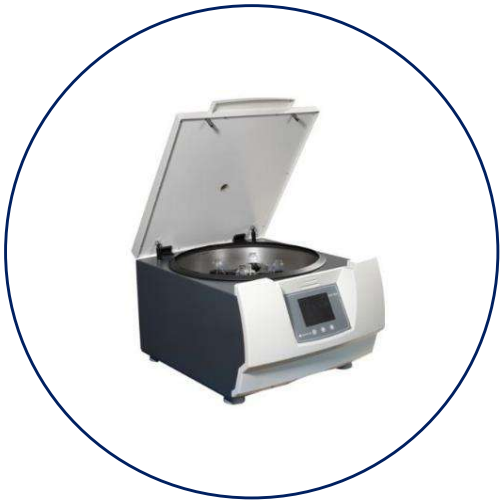
- The ASTM D565 (mineral oil) and ASTM D612 (paraffin wax) test methods cover the determination whether the sample conforms to the standard quality required for pharmaceutical use.
- For the test, either mineral oil or melted wax is treated with concentrated sulfuric acid (H_2SO_4) and heated under prescribed conditions. The resulting colour is compared with a reference standard to determine whether it passes or fails the test.

ASTM D565 TC16

ASTM Centrifuge for Oils

Petroleum Testing Equipment

- ASTM D91: Precipitation of lubricating oils.
- ASTM D96, D1290, D1796, D2273, D2709, D4007: Water and Sediment tests.
- ASTM D893: Insolubles in used lubricating oils.
- ASTM D2711: Demulsibility characteristics of lubricating oils.
- Water Bath to preheat the cone-shaped centrifuge tubes



CENTRIFUGE

ASTM D1796 TC16

D565 & D612

15 Lettertype is anders en veel te klein

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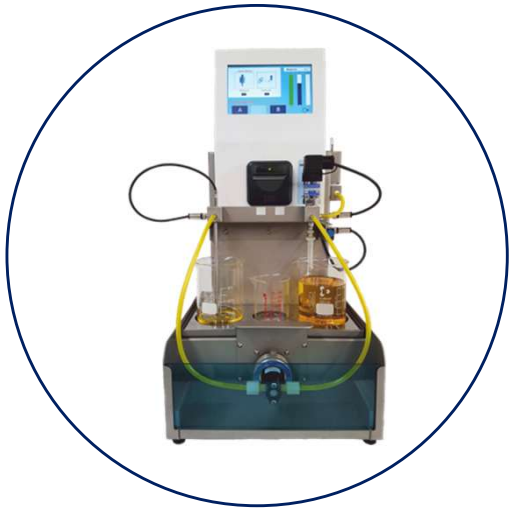
ASTM Equipment Filter Blocking Tendency

Petroleum Testing Equipment



TFBT

- A test portion of the fuel to be analysed is passed at a constant rate of flow (20 mL/min) through a specified filter medium. The pressure difference across the filter, and the volume of fuel passing the filter, are monitored until the pressure reaches 105 kPa or the volume of fuel passing the filter medium reaches 300 mL. The pressure and flow are then used to calculate the filter blocking tendency, where a low number indicates a good fuel.
- Procedures A & B
- Integrated touchscreen:
  - Real time curve is shown
  - Visually guided test using step by step instruction graphs
  - Can be used to select the right test, setting parameters and calibration of the sensors, easy to operate
- Integrated printer.
- Fully electronic calibration. No use of screwdrivers to adjust knobs
- Easy to calibrate flow, volume, and pressure, and temperature
- Software package available to connect TFBT to a PC

ASTM D2068, IP 387 TFBT

ASTM Equipment Ageing Bath

Petroleum Testing Equipment

- Two 50 mL volumes of filtered middle distillate fuel are aged for 90 or 180 min at 150°C in open tubes with air exposure. After aging and cooling, the fuel samples are filtered and the average amount of filterable insolubles is estimated by measuring the light reflectance of the filter pads. The 100 and 0 % extremes of the reflectance rating range are defined by an unused filter pad and a commercial black standard, respectively.
- Range from +5°C .. +250°C. TC16 with cover for six positions. TC40 with cover for 18 positions. Test tube holder for test tube (25*200mm), P/N 14T0103.

DUPONT TC16

ASTM D6468, Dupont F21, Octel F31. TC16 or TC40 Oil Baths for Aging Middle Distillate Fuels

ASTM EQUIPMENT SEDIMENT IN CRUDE OIL BY MEMBRANE FILTRATION

Petroleum Testing Equipment

- A portion of a representative crude oil sample is dissolved in hot toluene and filtered under vacuum through a 0.45-µm porosity membrane filter. The filter with residue is washed, dried, and weighed to give the final result.
- TC16 circulator pumps bath content through the jacketed funnel to keep the sample (mixture of toluene and crude oil) at +90°C. Funnel and filter support are made from glass as per method. All necessary accessories (clamp, stopper, support, vacuum pump, filters, tubing) are included in apparatus. The TC16 is supplied with a levelling platform and a cover with rings to heat a beaker with toluene to +90°C.

ASTM D4807 APPARATUS

ASTM D4807

ASTM Equipment Total Sediment in Residual Oils

Petroleum Testing Equipment

- A weighed quantity (10 g) of the oil sample is filtered through the Sediment tester at 100°C. After solvent washing and drying the total sediment on the filter medium is weighed. The test is to be carried out in duplicate.
- Two positions.
- Waste is collected outside the unit.
- A thermal bath is used for thermal and chemical ageing of the samples as prescribed in the annex of the test method. TC16 has a cover for six positions. TC40 has a cover for fifteen positions.

SEDIMENT TESTER

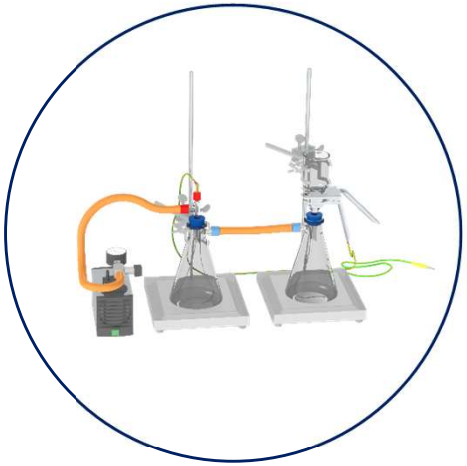
AGEING BATHS

ASTM D4870, IP 375, ISO 10307 | Sediment Tester and Baths for Thermal and Chemical Ageing of the Samples

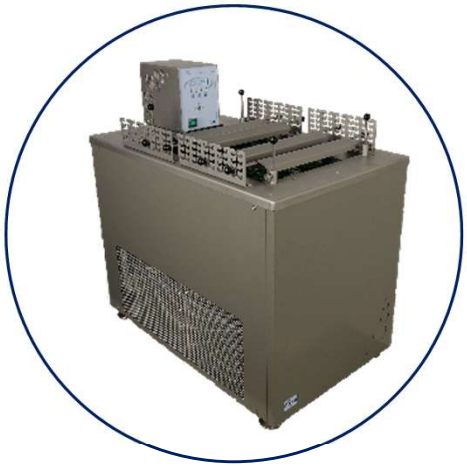
ASTM Equipment Cold Soak Filtration Test of Biodiesel

Petroleum Testing Equipment

- In this test method, 300 mL of biodiesel (B100) is stored at 4.5 ± 0.5°C (40 ± 1°F) for 16 h, allowed to warm to 25 ± 1°C (77 ± 2°F), and vacuum filtered through a single 0.7 µm glass fiber filter at controlled vacuum levels of ~70–85 kPa (21–25 in. of Hg). To pass, the full 300 mL sample must flow through the filter in less than 360 seconds.
- TLB50 to keep samples at +4.5°C for 16 hours. Position for 12 x 500mL Jars. Smart rack to position flasks. Complete filtration set available.



FILTRATION KIT



TLB50 COLD SOAK BATH

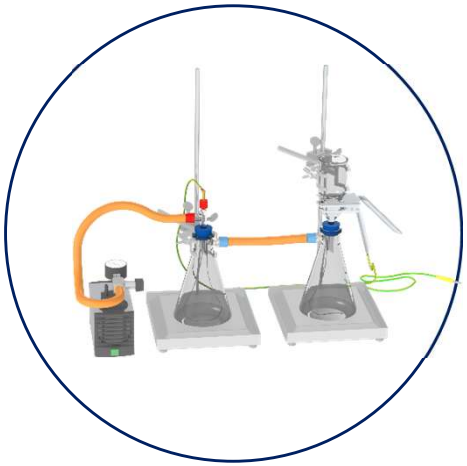
ASTM D7501. TLB50 + Filtration Kit

Test & Measurement Instruments

FILTRATION TEST

Petroleum Testing Equipment

- In this test method a sample portion is weighed and filtered under vacuum through a pre-weighed filter. In the case of neat FAME and liquid petroleum products having a kinematic viscosity exceeding 8 mm²/s at 20°C, or 5 mm²/s at 40°C, the weighed sample portion is diluted with a solvent before filtration. The filter with the residue is washed, dried and weighed. Contamination is calculated from the difference in mass of the filter
- The Tamson Filtration kit for IP 440 and EN 12662 (P/N 31T1999) consists of 0.7 micron filters (100 pcs), glass filter funnel and clamp, filter forceps, one litre safety flask, one litre receiving flask, one litre beaker, watch glasses (ten pieces), glass piece with earth lead, stopper with hole (two pieces) and tubing. The filtration kit can be supplied with a tripod with clamps to ensure that the filtration kit is not falling over. This greatly improves the safety when operating the filtration kit.



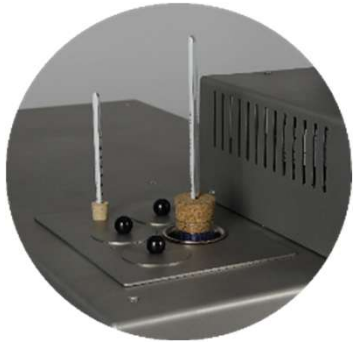
FILTRATION KIT

ASTM Equipment Cold Flow Properties

Petroleum Testing Equipment

- ASTM D97: pour point of petroleum products. The pour point describes a procedure for testing the fluidity of a petroleum product at a temperature.
- ASTM D2500: cloud point of petroleum products. The cloud point is defined as the temperature of a liquid specimen when the smallest observable cluster of wax crystals first appears upon cooling.
- ASTM D5853: The test method covers the determination of the pour point temperatures of crude oil down to -36°C. This specification sheet covers the baths needed for this test method to preheat the sample.
- ASTM D6922: determination of homogeneity and miscibility in automotive engine oils.
- Single and adjustable circulator baths TLC40-14 and TCC-B. Lid with position for six jackets with TLC40-14, four jackets with TCC-B. All accessories like felt disks, felt gaskets, corks, jackets, test jars are supplied by Tamson.

ASTM D5853 TC16



TCC-B ASTM D97

CEC Oxidation Test for Engine Oils

Petroleum Testing Equipment

- CEC L-109-14: Oxidation test for engine oils operating in the presence of biodiesel fuels. For this test, the sample is blended with 7% of B100. This mixture and 10 mL of an ion catalyst solution are poured in a flask which is heated to 150°C in an oil bath while an air flow of 10 L/h is fed through the sample. The standard test duration is 216 hours with intermediate samples taken after 72, 144, and 168 hours. The change in kinematic viscosity @ 100°C and oxidation level (FTIR) of the sample are evaluated.
- For this test method, Tamson supplies a TC40 complete with all the glassware and six flow meters required for this test. The TC40 offers six positions and has a range from ambient … +250°C.
- For this test method, determination of kinematic viscosity is necessary. Tamson can also supply a kinematic viscosity bath.

CEC L-109-14 APPARATUS

CEC Oxidation Test for Lubricating Oils

Petroleum Testing Equipment

- CEC L-48-00 (B) oxidation stability of lubricating oils used in automotive transmissions by artificial ageing. The sample is poured in a oxidation tube which is heated to between 120°C and 180°C in an oil bath while an air flow of 5 L/h is fed through the sample. The standard test duration is 192 hours. The change in kinematic viscosity and oxidation level (FTIR) of the sample are evaluated.
- For this test method, Tamson supplies a TC40 complete with all the glassware and six flow meters required for this test. The TC40 offers six positions and has a range from ambient … +250°C.
- For this test method, determination of kinematic viscosity is necessary. Tamson can also supply a kinematic viscosity bath.

CEC L-48-00 (B) APPARATUS

OXIDATION TEST OF MINERAL OIL

Petroleum Testing Equipment

- The oxidation stability test of mineral transformer oils is a method for assessing the amount of sludge and acid formed in a transformer oil when the oil is tested under prescribed conditions. Good oxidation stability is necessary to improve the service life of the oil. Oils that meet the requirements tend to minimize electrical conduction, ensure acceptable heat transfer, and preserve system life.
- The Tamson ASTM D2440 apparatus consists of one liquid bath equipped with six sets of calibrated flowmeters and six sets of glassware. The flowmeters have a fine adjustable needle valve, to ensure the correct amount of oxygen is supplied. A dryer tower is also supplied and can be mounted on the side of the bath.
- Also suitable for IEC 61125.

ASTM D2440 APPARATUS

ASTM EQUIPMENT PHOSPHORUS IN GASOLINE

Petroleum Testing Equipment

ASTM D3231 APPARATUS

- ASTM D3231: The ASTM D3231 test method covers the determination of phosphorus generally present as pentavalent phosphate esters or salts, or both, in gasoline. Organic matter in the sample is decomposed by ignition in the presence of zinc oxide. The residue is dissolved in sulfuric acid and reacted with ammonium molybdate and hydrazine sulfate. The absorbance of the Molybdenum Blue complex is proportional to the phosphorus concentration in the sample and is read at approximately 820 nm in a 5 cm cell.
- TC20b with cover for eight positions
- Range ambient .. +200°C
- Setting 0.1°C
- Stability 0.02°C
- Levelling platform with rack
- Bath drain
- Volumetric flasks can optionally be supplied

ASTM EQUIPMENT FOAMING OF LUBRICANTS

Petroleum Testing Equipment

DUAL FOAMING BATH

- ASTM D892: ASTM D892 covers the determination of the foaming characteristics of lubricating oils at 24°C and 93.5°C. The tendency of oils to foam can be a serious problem in systems such as high-speed gearing, high-volume pumping, and splash lubrication. Inadequate lubrication, cavitation, and overflow loss of lubricant can lead to mechanical failure. This test method is used in the evaluation of oils for such operating conditions.
- Two visibility baths, each bath can hold up to four foaming cylinders
- Supplied with rack to hold cylinders and flow meters
- Supplied with four flow meters
- Drain valve to empty bath contents
- Both baths are equipped with cooling coil
- Rack with clamps to overcome buoyancy of cylinder
- Digital mass flowmeter optional

ASTM EQUIPMENT FOAMING OF LUBRICANTS

Petroleum Testing Equipment

SINGLE FOAMING BATH

- ASTM D6082 covers the determination of the foaming characteristics of lubricating oils at 150°C. The tendency of oils to foam can be a serious problem in systems such as high-speed gearing, high-volume pumping, and splash lubrication. Inadequate lubrication, cavitation, and overflow loss of lubricant can lead to mechanical failure. This test method is used in the evaluation of oils for such operating conditions
- One visibility bath, each bath can hold up to four foaming cylinders
- Supplied with rack to hold cylinders and flow meters
- Supplied with two flow meters
- Drain valve to empty bath contents
- Bath is equipped with cooling coil
- Rack with clamps to overcome buoyancy of cylinder

High Temperature Baths

- **Tamson has the following apparatus to work at temperatures above ambient:**
  - Tamson Thermostat Units (TTU-A)
  - Tamson Circulator (TCxx)
- **Tamson has the following apparatus to work at temperatures sub-ambient:**
  - Tamson Low-temperature Bath (TLBxx)
  - Tamson Low-temperature Circulator (TLCxx)
  - Tamson Cool Cube (TCC-x)

Test & Measurement Instruments

CIRCULATORS AND BATHS

High Temperature Baths

- ✓ Completely stainless steel
- ✓ Ambient to 200°C
- ✓ Easy to operate
- ✓ Fluid level detection
- ✓ RS232 Communication
- ✓ Custom made mounting plates available
- ✓ Several TTUA models:
  - ✓ Stirrer, cooling coil, long shaft
  - ✓ Pump and stirrer, short shaft
  - ✓ Stirrer, boost heater, short shaft

Applications:

- To replace old thermostatic units
- Heating of custom made bath which already is being used by the customer.

STIRRER

PUMP

TTU-A

Test & Measurement Instruments

TAMSON CIRCULATOR (TCXX)

High Temperature Baths

TC16 TC40 TC58

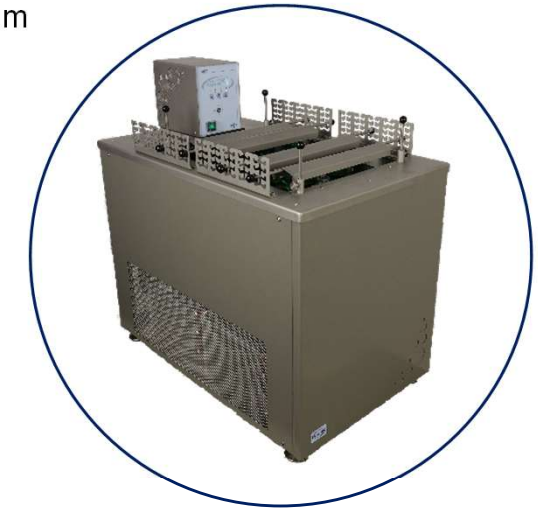
- ✓ Bath stainless steel
- ✓ Range ambient .. 250°C
- ✓ Level indication
- ✓ Bath drain
- ✓ Cooling coil
- ✓ Levelling platform*
- ✓ RS232*
- ✓ Remote PT100*
- ✓ *Optional

- **Applications:**
- Quality testing
- General purpose
- Heating of external device

TAMSON LOW TEMPERATURE BATH

Low Temperature Baths

- ✓ Range from -5°C up to +80°C.
- ✓ Energy efficient
- ✓ Fixed or split leveling platform
- ✓ Adjustable rack systems.
- ✓ Multiple safety features
  - ✓ Bath drain and overflow
  - ✓ Over-temperature
  - ✓ Acoustic alarm (high/low)
  - ✓ Warning to your laboratory alarm system
- ✓ Table top
- ✓ Rapid cool down
- ✓ Stability ± 0.02°C



TLB50 – Sample preparation!

Test & Measurement Instruments

HEAT REMOVAL CIRCULATORS

est. 1878 Tamson

Low Temperature Baths

TLB50, TLC15-5, TLC30-5, TLC40-14 and TCC-B.

- ✓ Ambient .. -88°C
- ✓ RS232 communication
- ✓ External circulation
- ✓ Bath
  - ✓ Drain
  - ✓ Level indication

TCC-B

TLC15-5

TLC40-14

Test & Measurement Instruments

ACCECOIRIES

Accessories

- ✓ Bath fluid
- ✓ Viscosity accessories
- ✓ 8-Channel Stopwatch
- ✓ Backlight Illumination
- ✓ ASTM Thermometers
- ✓ Digital Contact Thermometer
- ✓ Reference Standards

DIGITAL CONTACT THERMOMETER

Accessories

Tamson TT3B Digital Contact Thermometer (DCT)

Complies to IEC 751, ITS 90, ASTM E644, E1137, E2877

- ✓ Accuracy of ± 0.02°C
- ✓ Resolution of ± 0.001°C.
- ✓ Substitute for the commonly known mercury in glass thermometers
- ✓ Free Tamcom software
- ✓ Range from -40 .. +140°C
- ✓ Protective blue suitcase
- ✓ Conforms to new requirements of ASTM D445 / D8278

TT3B

Test & Measurement Instruments

Calibration

- ✓ Temperature to 0.01°C
- ✓ Flow
- ✓ Pressure
- ✓ Foam diffuser

PMT

Certificate of Calibration

Tamson Instruments bv states following:

Date: 23-7-2024

Place: Bleiswijk, Netherlands

Equipment

Serial No: 2404Spo1

Description: Spherical Gas Diffuser

Part no: 31T006BW

Material/Type: Stone

Maximum Pore diameter (in Water)

Measured [mmH2O] D-Value [/mmH2O]

Permeability

Measured [ml/min]

Relevant test conditions

Time reference	https://www.time.gov/	± 0,2
Manual reaction Error Stop Watch	[sec]	± 0,005
Gas Volume	0,500 [L]	± 0,5
Ambient Temperature	20,9 [°C]	± 5
Ambient Humidity	51 [%]	± 2
Calibration overpressure	±0 [mBar]	± 0,001
Gravity field	9,812 [m/s²]	
Gas Volume	Ritter TG05 MK44101989	
Setup	As per ASTM D822-18 A1.1 and A1.2. D6082-12 (2017). Annex	

At the time of manufacture, this certifies that the above product was calibrated in accordance with applicable Tamson procedures which are in compliance with relevant clause of ISO 9001 : 2015.

At the time of shipment, this instrument meets its published operating specifications. The environment in which this instrument was calibrated is kept within the operating specifications of the instrument and standards.

The calibration period of this instrument begins on the date of shipment. Verification interval is advised to follow the instructions in the test method.

Performed by:

Tamson Instruments bv

Petroleum Testing Equipment | High Temperature Baths | Low Temperature Baths | Accessories | Calibration & measuring

est. 1878
Tamson

Test & Measurement
Instruments

Thank You for Your Attention!