Spectro Scientific
AMETEK

InfraCal 2 Analyzers

MEASURING OIL IN WATER & SOIL

Globally Trusted Oil in Water/Soil Analyzers

The InfraCal 2 Oil in Water Analyzers quickly and accurately measure TOG (total oil & grease), FOG (fats, oil and grease) and TPH (total petroleum hydrocarbons) in produced water, industrial wastewater and soil. InfraCal 2 analyzers have become the petrochemical industry standard ensuring oil content levels in produced water, drill cuttings or soil are below the regulated limit.

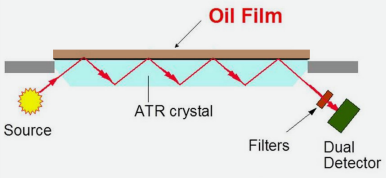




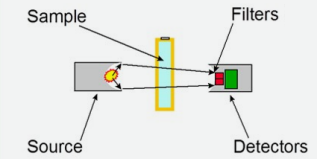
The InfraCal 2 ATR-SP is recommended for measuring oil in water, TPH in soil or FOG in wastewater concentration levels when using hexane, pentane or Vertrel MCA as the extracting solvent. Measurement data obtained with this analyzer will correlate to EPA Method 1664 as both procedures are based on evaporation techniques and measuring the residual oil and grease. The analyzer is equipped with a built-in cubic zirconia horizontal attenuated total reflection (HATR) stainless steel sample stage.

The InfraCal 2 TRANS-SP is recommended for measuring oil in water, TPH in soil or FOG in wastewater concentration levels using the traditional EPA methods 413.2 and 418.1 or ASTM method D7066-04 and Freon-113, hydrocarbon-free grade of perchloroethylene, AK-225, S-316 or other spectroscopic infrared transparent solvent as the extracting solvent. Since the extract is deposited into a 10 mm quartz cuvette cell with Teflon stopper, light end volatile components are retained for measurement. Accurate down to 0.1 ppm.

ATR-SP



TRANS-SP



Principle of Operation

The InfraCal 2 Analyzers for measuring total oil and grease and total petroleum hydrocarbons in water and soil makes use of the fact that hydrocarbons such as oil and grease can be extracted from water or soil through the use of an appropriate solvent and extraction procedure. The extracted hydrocarbons absorb infrared energy at a specific wavelength and the amount of energy absorbed is proportional to the concentration of oil and grease in the solvent. The analyzer can be calibrated to read out directly in the desired units.

Applications

- Testing produced water on offshore or onshore oil rigs
- Monitoring refinery or industrial plant wastewater effluents
- Measuring FOG discharge levels
- Checking oil/water separation systems
- Measuring oil in drilling mud/cuttings
- Testing for residual oil on pre-cleaned metal components
- Determining the purity level of reclaimed solvents
- Onsite testing of soil at remediation sites

Features

- Results in less than 15 minutes
- Sub-ppm measurements
- Rugged, portable, easy-to-use
- Internal data logging
- Export via USB
- Multiple calibrations

	 InfraCal 2 ATR-SP	 InfraCal 2 TRANS-SP
Solvent	Hexane, pentane, cyclohexane, Vertrel MCA	Perchloroethylene, S-316, Freon-113
Method Complies	ASTM D8478	ASTM D7066 EPA 413.2 & EPA 418.1
Method Compares	EPA 1664 ISO 9377-2	ASTM D7678 EPA 1664 ISO 9377-2

InfraCal 2 ATR-SP and TRANS-SP Ordering Information

SPECIFICATIONS	
Analytical Wavelength/Wave Number	3.4 µm, 2930 cm^{-1}
Power Requirements	18 volts DC, 3.3 amps, internal battery
Power Supply	Universal AC, optional Auto adapter
Weight	5.8 lb. (2.6 kg) with battery -7.0 lbs (3.2 kg)
Dimensions	(17 cm) x 7.8" (19.8 cm) x 5.2" (13.2 cm)
Suggested Operating Range	40°F (5°C) – 110°F (40°C)
Measurement Range	ATR-SP: 0.3-2000+ppm TRANS-SP: 0.1-2000+ppm
Analysis Time	10-15 minutes, including extraction process
Instrument Repeatability	ATR-SP: down to ± 0.3 ppm TRANS-SP: down to ± 0.1 ppm
Communication Port	USB, RS 232

INFRACAL 2 ATR-SP FACTORY CALIBRATED ANALYZERS	
405-2034-44	**Includes a factory calibration using Hexane TOG/TPH High Range Calibration Standards** for samples containing primarily petroleum hydrocarbons. Water: 10, 25, 50, 100, 150, and 200 mg/L
405-2034-8144	**Includes a factory calibration using Hexane TOG/TPH Low & High Range Calibration Standards** for samples containing primarily petroleum hydrocarbons. Water: 0.5, 1, 2.5, 5.0, and 7.5 mg/L & 10, 25, 50, 100, 150, and 200 mg/L
405-2034-72	**Includes a factory calibration using Hexane TOG/FOG Calibration Standards** for wastewater that contains animal and/or plant oils. Water: 10, 25, 50, 100, 150, and 200mg/L
INFRACAL 2 ATR-SP CALIBRATION STANDARDS SETS	
403-1081	**Low Range Hexane TOG/TPH Five Point Calibration Standard Set:** Light Mineral Oil in hexane prepared by a certified laboratory. The set contains 6 standards from 0.5 mg/L to 7.5 mg/L (ppm) for water and 5 mg/kg to 75 mg/kg for soil, includes solvent blanks. Recommended for customers in the petroleum industry who are primarily measuring low levels of petroleum hydrocarbons in water or soil.
403-1044	**Hexane TOG/FOG Six Point Calibration Standard Set:** 50:50 Soybean Oil/Hexadecane in N-Hexane prepared by a certified laboratory. Nominal concentration values are 10 mg/L (ppm), 25 mg/L, 50 mg/L,100 mg/L,150 mg/L and 200 mg/L for water assuming a 10:1 extraction ratio. The set contains 6 standards along with a solvent blank in 2 ml flame sealed ampoules. Recommended for customers measuring non-polar (petroleum) and polar (animal and vegetable fats) hydrocarbons for TOG or FOG measurements such as municipal wastewater or industrial wastewater that includes animal and vegetable fats.
403-1072	**Hexane TOG/FOG Six Point Calibration Standard Set:** 50:50 Soybean Oil/Hexadecane in N-Hexane prepared by a certified laboratory. Nominal concentration values are 10 mg/L (ppm), 25 mg/L, 50 mg/L,100 mg/L, 150 mg/L and 200 mg/L for water assuming a 10:1 extraction ratio. The set contains 6 standards along with a solvent blank in 2 ml flame sealed ampoules. Recommended for customers measuring non-polar (petroleum) and polar (animal and vegetable fats) hydrocarbons for TOG or FOG measurements such as municipal wastewater or industrial wastewater that includes animal and vegetable fats.

INFRACAL 2 TRANS-SP FACTORY CALIBRATED ANALYZERS	
405-2035-41	**TRANS-SP Includes a factory calibration using S-316 standards** for samples containing primarily petroleum hydrocarbons with minimal animal/plant oils. Water: 10, 25, 50, 100, 150, and 200 mg/L
405-2035-8041	**TRANS-SP Includes a factory calibration using S-316 standards** for samples containing primarily petroleum hydrocarbons with minimal animal/plant oils. Water: 0.5, 1, 2.5, 5.0, and 7.5 mg/L & 10, 25, 50, 100, 150, and 200 mg/L
405-2035-40	**TRANS-SP Includes a factory calibration using S-316 standards** for samples containing primarily animal and/or plant oils. Water: 10, 25, 50, 100, 150, and 200 mg/L
405-2035-78	**TRANS-SP Includes a factory calibration using Tetracloroethylene standards** for samples containing primarily petroleum hydrocarbons with minimal animal/plant oils. Water: 10, 25, 50, 100, 150, and 200 mg/L
405-2035-7978	**TRANS-SP Includes a factory calibration using Tetracloroethylene standards** for samples containing primarily petroleum hydrocarbons with minimal animal/plant oils. Water: 0.5, 1, 2.5, 5.0, and 7.5 mg/L & 10, 25, 50, 100, 150, and 200 mg/L
INFRACAL 2 TRANS-SP CALIBRATION STANDARDS SETS	
403-1080	**TOG/TPH Low Range S-316 TOG/TPH Five Point Calibration Standard Set:** Light Mineral Oil in S-316 prepared by a certified laboratory. The set contains 6 standards from 0.5mg/L to 7.5 mg/L (ppm) for water and 5 mg/kg to 75 mg/kg for soil, includes solvent blanks. Recommended for customers in the petroleum industry who are primarily measuring low levels of petroleum hydrocarbons in water or soil.
403-1041	**TOG/TPH High Range S-316 Six Point Calibration Standard Set:** Light Mineral Oil in S-316 prepared by a certified laboratory for TOG/TPH Analysis. Nominal concentration values are 100 mg/kg (ppm), 250 mg/kg, 500 mg/kg, 1000 mg/kg, 1500 mg/kg and 2000 mg/kg for soil assuming a 1:1 extraction ratio; and 10 mg/L (ppm), 25 mg/L, 50 mg/L, 100 mg/L, 150 mg/L and 200 mg/L for water assuming a 10:1 extraction ratio. The set contains 6 standards along with a solvent blank in 4 ml flame sealed ampoules. Recommended for customers in the petroleum industry who are primarily measuring petroleum hydrocarbons in water or soil.
403-1040	**FOG/TOG High Range S-316 TOG/FOG Six Point Calibration Standard Set:** 50:50 Isooctane/Octanoic Acid in S-316 as per ASTM Method D 7066-04 prepared by a certified laboratory. Nominal concentration values are 10 mg/L (ppm), 25 mg/L, 50 mg/L, 100 mg/L, 150 mg/L and 200 mg/L for water assuming a 10:1 extraction ratio. The set contains 6 standards along with a solvent blank in 4 ml flame sealed ampoules. Recommended for customers measuring non-polar (petroleum) and polar (animal and vegetable fats) hydrocarbons for TOG or FOG measurements such as municipal wastewater or industrial wastewater that includes animal and vegetable fats.
403-1079	**TOG/TPH Low Range Tetrachloroethylene TOG/TPH Five Point Calibration Standard Set:** Light Mineral Oil in Tetrachloroethylene prepared by a certified laboratory. The set contains 6 standards from 0.5mg/L to 7.5 mg/L (ppm) for water and 5 mg/kg to 75 mg/kg for soil, includes solvent blanks. Recommended for customers in the petroleum industry who are primarily measuring low levels of petroleum hydrocarbons in water or soil.
403-1078	**TOG/TPH High Range Tetrachloroethylene TOG/TPH Six Point Calibration Standard Set:** Light Mineral Oil in Tetrachloroethylene prepared by a certified laboratory for TOG/TPH Analysis. Nominal concentration values are 100 mg/ kg (ppm), 250 mg/kg, 500 mg/kg, 1000 mg/kg, 1500 mg/kg and 2000 mg/kg for soil assuming a 1:1 extraction ratio; and 10 mg/L (ppm), 25 mg/L, 50 mg/L, 100 mg/L, 150 mg/L and 200 mg/L for water assuming a 10:1 extraction ratio. The set contains 6 standards along with a solvent blank in 4 ml flame sealed ampoules. Recommended for customers in the petroleum industry who are primarily measuring petroleum hydrocarbons in water or soil.

ACCESSORIES	
403-0013	Carrying Case for InfraCal Analyzers with pre-diced foam. 18.5"x14.6"x8"; 10 lbs
403-1086	Dust Cover
403-1011	Field Sampling Kit for TOG/TPH in Water, for use with ATR-SP
403-1063	Field Sampling Kit for TOG/TPH in Water for use with TRANS-SP
403-1010	Field Sampling Kit for TOG/TPH in Soil. For use with ATR-SP or TRANS-SP

For more info visit: www.spectrosci.com

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