Data Sheet

J. M. CANTY TRANSPORTABLE INFLOW

Oil And TSS In Water Analyser

Supplied by

247able.com

Call us on +44 (0)118 916 9420 | Email info@247able.com

CANTY
PROCESS TECHNOLOGY

TRANSPORTABLE INFLOW Oil and TSS in Water Analyser

Concentration and PSD Measurement
Easily Moved Between Sample Points
Imaging Based Technology
Quick & Easy Hook Up
Real Time Analysis

IECEx Ex

TA12100-1001 Rev. 1

JM Canty, Inc. · Buffalo NY · Phone: (716) 625-4227 | JM Canty International Ltd. · Dublin, Ireland · Phone: +353 (1) 882-9621 | Phuket, Thailand · Phone: +66 839689548

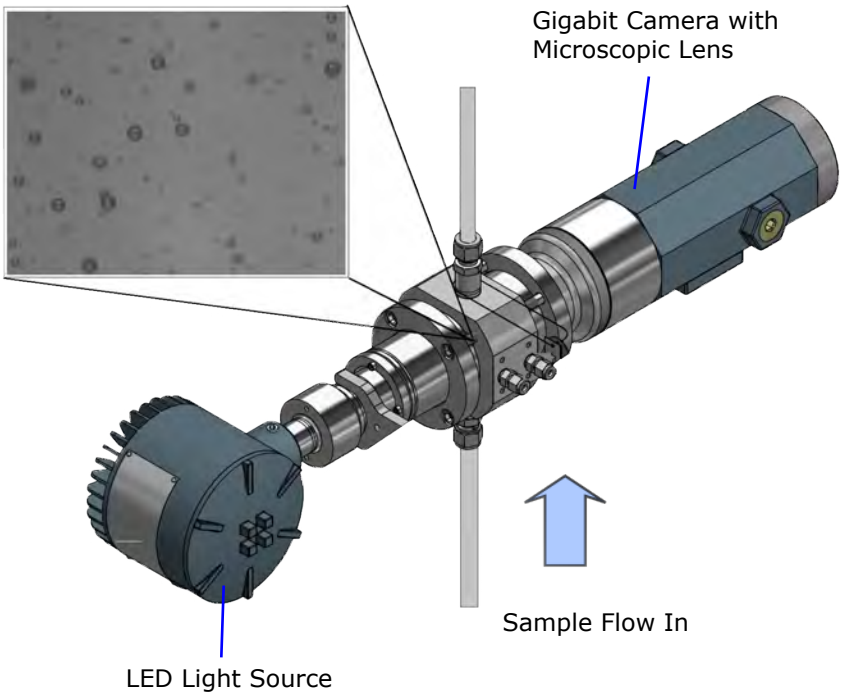
Oil Concentration - Oil Droplet Size - Solids Concentration - Solids Particle Size

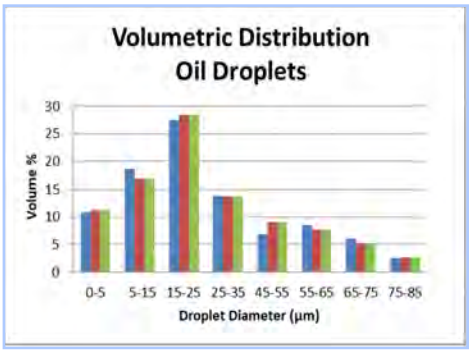
Combining the latest Gigabit Ethernet camera and microscopic optics technology, with CANTY's trademark fused glass, LED lighting systems, and CANTYVISION Intelligent Analysis™ software, the Transportable INFLOW™ provides real time analysis (concentration & size) of Oil and Total Suspended Solids in Water.

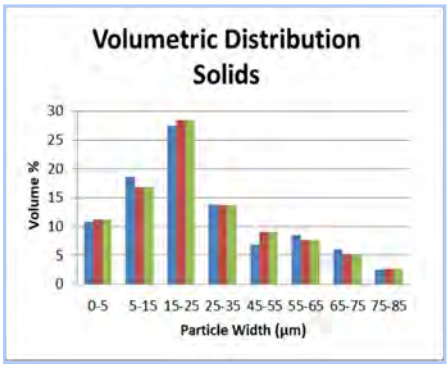
How it works...

CANTY's Dynamic Imaging technique works on the fundamental principle of flowing the water stream through the INFLOW™ analyser flow cell, where it passes between a high intensity LED light source and microscopic optics, allowing for high resolution image capture and analysis.

The image analysis is performed in real time by CANTYVISION Intelligent Analysis™ (CVIA) software, which is configured and operated via the system's wireless tablet. The CVIA software measures the suspended particulate (oil, solids, gas bubbles) under a number of parameters to provide concentration and size data. The software's AI applies a multi level classification to differentiate particle types, meaning oil, solids, and gas bubbles are separately, yet simultaneously classified & analysed.

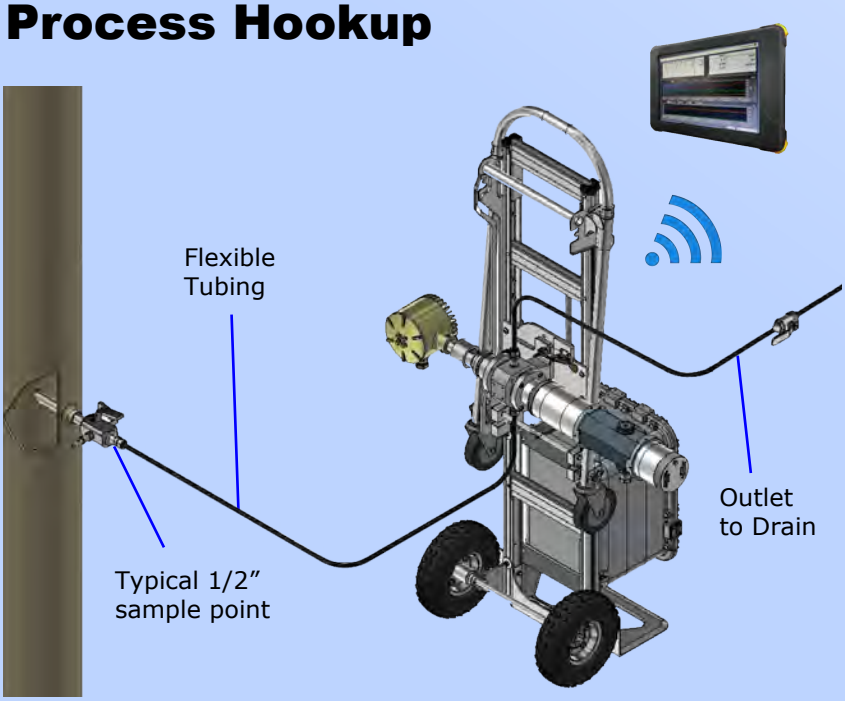






TA12100-1001 Rev. 1

Process Hookup

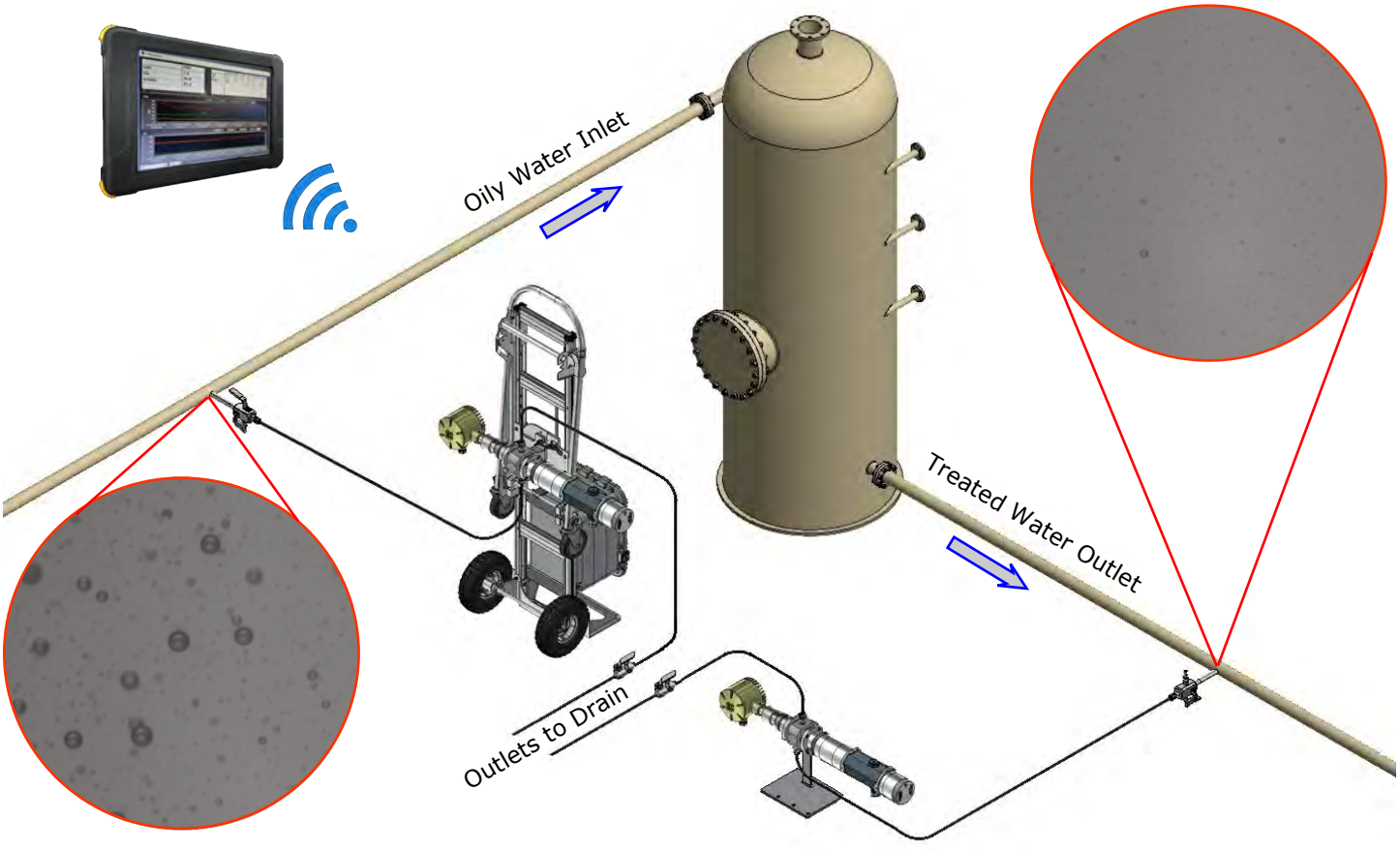


The Transportable INFLOW™ is designed for multi point site surveys, and testing or trouble shooting of any oilfield separation systems.

It features 1/2" Swagelok inlet and outlet connections, for quick and easy hookup to typical 1/2" sample points. This is most commonly done via flexible hosing with a regulator valve in the outlet line, which is directed to the drain system or a lower pressure point for the duration of the test.

The system can be hooked up and analysing within a matter of minutes, while the wheeled trolley with large pneumatic tyres allows the unit to be easily moved from sample point to sample point within the oilfield facility.

There is also the option to add a second INFLOW™ unit, so that the inlet and outlet of any separation equipment can be analysed simultaneously. The second INFLOW™ is supplied as a separate unit with it's own stand, and is hooked up to the main system electrical enclosure as and when required. Both INFLOW™ units are then configured and operated via the single wireless tablet.



JM Canty, Inc. · Buffalo NY · Phone: (716) 625-4227 | JM Canty International Ltd. · Dublin, Ireland · Phone: +353 (1) 882-9621 | Phuket, Thailand · Phone: +66 839689548

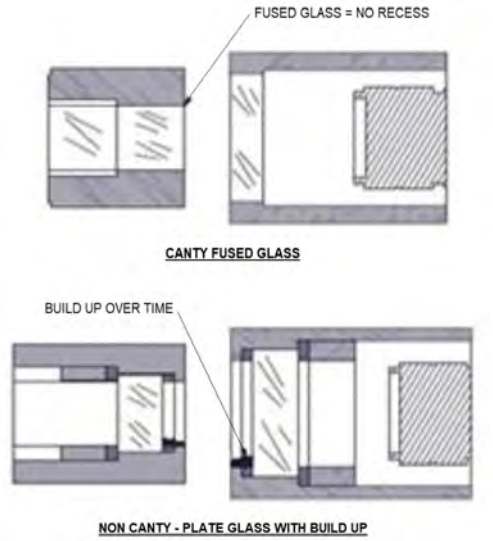
Key Technology

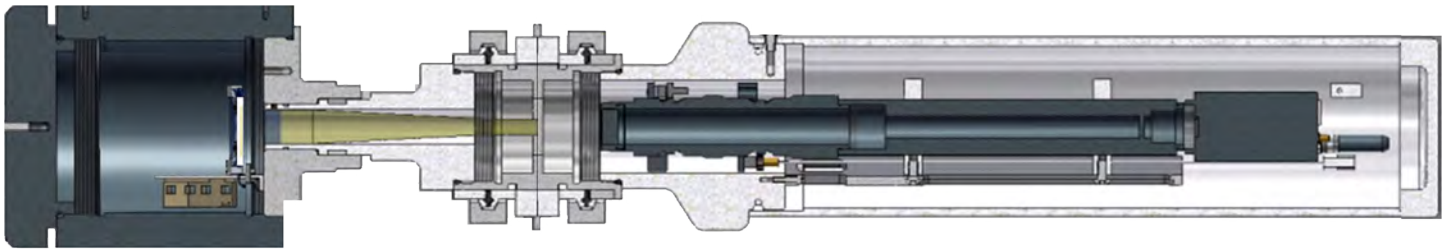
CANTY's **Fused Glass** technology is incorporated into the Transportable INFLOW™, where it is used for the windows on the system's camera and light. This provides a high pressure impenetrable process barrier, with no crevices or spaces for particulate to build up and foul the glass. The flush fused glass surfaces also allow for increased control of the systems adjustable width flow gap, ensuring a suitable fluid depth vs the depth of focus of the optics, which is critical for high quality image capture.

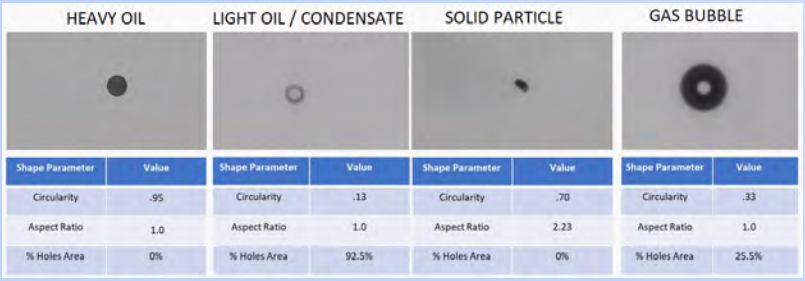
Lighting is the key to any imaging based measurement. The wavelength and intensity of the light, along with how to efficiently transmit that light from it's source into the imaging area, determine the quality of the images captured, and therefore the quality of the analysis performed.

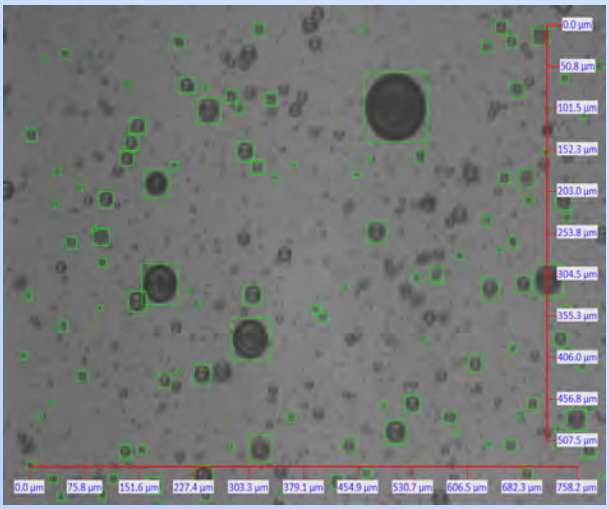
The Transportable INFLOW™ high intensity LED light source, draws from CANTY's long history and vast experience in process lighting, allowing the camera optics to perform to their maximum specification to provide high resolution images, of high velocity droplets and particles, as small as 0.7 micron.

The light source was developed as part of the subsea marinisation of CANTY's technology, where reliability and long life are major priorities, so the light source is rated for 50,000 hours of use.









CantyVision Intelligent Analysis (CVIA) software analyses the captured images. Each droplet and particle is analysed under 30+ visual parameters, allowing the system to differentiate between oil, solids and gas within the water stream. The high speed processor ensures all of this is done as real time analysis.

The intuitive CVIA interface on the system's wireless tablet, allows the user to visually verify what the system is analysing, and view real time graphical trends for any parameters they may be interested in, while the user friendly functionality means adjusting any analysis parameters at any time is a simple task.

Different types of oils are no issue for the system, with light oils such as condensates also easily visualised and analysed.

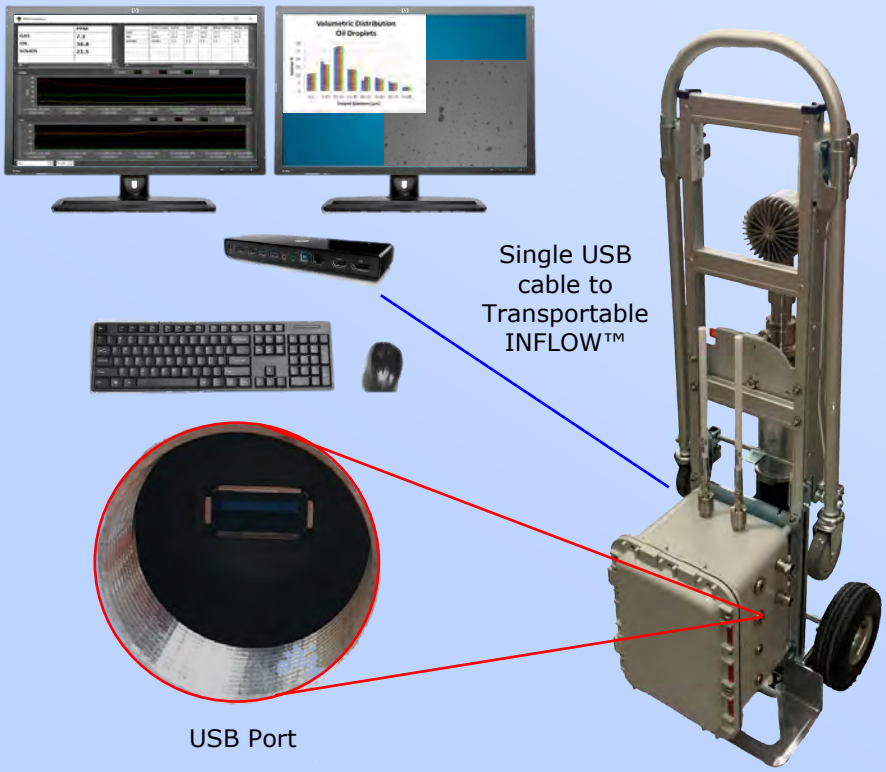
JM Canty, Inc. · Buffalo NY · Phone: (716) 625-4227 | JM Canty International Ltd. · Dublin, Ireland · Phone: +353 (1) 882-9621 | Phuket, Thailand · Phone: +66 839689548

USB Connectivity

In the field, the Transportable INFLOW™ is fully configured and operated via the wireless tablet.

Once out of the hazardous area, the system's USB connection can be easily accessed by removing one of the plugs on the main enclosure. This allows for fast and easy extraction of data, images and videos from the onboard processor.

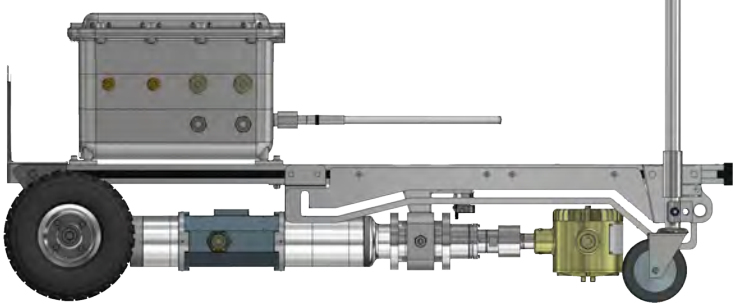
The USB connection also facilitates the option of hooking up to a Universal Docking Station (user supplied), which allows the user to perform in depth review and interpretation of the data, directly on the system's high speed industrial processor but on a larger screen in a more comfortable environment.



Transportability

The Transportable INFLOW™ central pivot point, allows the analyser to be rotated 90 degrees from it's horizontal operating position, to a vertical position for a more compact configuration used during transportation and storage.

The trolley design also allows the entire system to be laid flat for even easier 4 wheel transport in suitable locations



JM Canty, Inc. · Buffalo NY · Phone: (716) 625-4227 | JM Canty International Ltd. · Dublin, Ireland · Phone: +353 (1) 882-9621 | Phuket, Thailand · Phone: +66 839689548

Sample Case Study

Part 1: CFU Performance Assessment

- A major operator had issues with a high concentration of oil in water at a CFU outlet, despite the inlet concentration being within equipment's range.
- The initial theory was that the high concentration at the outlet, was due to the presence of a large number of sub 11 micron oil droplets, which was the low limit for that particular CFU's optimum separation efficiency.
- The INFLOW™ connected at CFU inlet and outlet showed that droplet distributions were almost identical, and that 70% of the droplets at the outlet were larger than 11 micron!
- The CFU manufacturer was able to understand the real situation in detail and improve performance.

	CFU Droplet Diameter (µm)		CFU (without Chemical) Droplet Diameter (µm)	
Dv	Upstream	Downstream	Upstream	Downstream
10	8	7	9	7
20	10	9	11	10
30	11	11	13	12
40	13	12	14	14
50	14	14	15	15
60	15	16	17	18
70	17	18	19	20
80	19	21	21	24
90	22	27	23	27
100	30	32	33	30

Part 2: Coalescing Chemical Effectiveness

- Operator had doubts about the effectiveness of the current coalescing chemical dosing regime.
- The CFU test above was carried out both with and without coalescing chemical being dosed.
- The droplet size distribution was almost identical with and without dosing, concluding that the current dosing is completely ineffective.
- Chemical vendor returned to site to re-assess type and volume of coalescing chemical used.

Weather-Proof (Non Ex) Version

A non Ex rated Portable INFLOW™ is also available. This can be used in non rated areas, or in the hazardous area under a hot permit. It has the same optical setup as the ATEX / IECEx certified unit, so would produce identical images and data.

It is a lighter weight unit as it features a Glass Reinforced Polyester (GRP) power supply unit, so is not trolley mounted, and is instead supplied in a sturdy pelican case, which can be easily moved around as and when required.

The image analysis and data gathering is performed on a rugged weatherproof laptop running our CVIA software, and which connects to the INFLOW™ via direct Ethernet cable.

TA12100-1001 Rev. 1

Technical Specification

Measurement

Operating Principle	Dynamic Imaging
Range	Option 1: 2 - 295µm / 0 - 2,500* ppm(v)
(Size / Concentration)	Option 2: 5 - 725µm / 50 - 50,000* ppm(v)
Response Time	< 1 Second

Note that size ranges detailed are the maximum accuracy ranges. Measurement of particles / droplets outside these ranges is possible, but with a reduced level of accuracy. Consult CANTY for details.

Operational Ratings

Pressure	500 PSI (34.5 Bar)**
Temperature	200°F (93°C)

Mechanical Data

Connection	1/2" Swagelok Inlet & Outlet
Wetted Materials	316L SS** (option for NACE MR0175 Compliance)
Seal Material	Viton**
Weight	157 lbs (71kg)
Dimensions	520mm(W) x 570mm(D) x 1580mm(H) *(1000mm(W) with InFlow in Operational Position)*

Electrical Data

Power Supply Required	24V DC 8A**

Certifications

ATEX	Zone 1, II 1/2 GD, Ex db IIB+H2 T5
IECEx	Zone 1, II 1/2 GD, Ex db IIB+H2 T5
Ingress Protection	IP66

* Dependent on particle / droplet size distribution

** Consult CANTY for other options

Ordering Information

TIF-V0_B0112D4V-_ _

OPTICS MEASUREMENT RANGE
1 - 2 - 295µm / 0 - 2,500 ppm(v)
3 - 5 - 725µm / 50 - 50,000 ppm(v)

2ND INFLOW
0 - N/A - SINGLE UNIT ONLY
1 - 2 - 295µm / 0 - 2,500 ppm(v)
3 - 5 - 725µm / 50 - 50,000 ppm(v)

ZONE 1 TABLET
0 - NOT INCLUDED
1 - INCLUDED

JM Canty, Inc. · Buffalo NY · Phone: (716) 625-4227 | JM Canty International Ltd. · Dublin, Ireland · Phone: +353 (1) 882-9621 | Phuket, Thailand · Phone: +66 839689548

CANTY'S GOAL IS TO PROVIDE EQUIPMENT TO ENHANCE PROCESS UNDERSTANDING AND CONTROL. WE ACCOMPLISH THIS BY DESIGNING, MANUFACTURING AND SERVICING THE FINEST EQUIPMENT IN THE WORLD

CANTY
PROCESS TECHNOLOGY

SOME OF THE COMPANIES WE HAVE WORKED WITH

Exxon Mobil	ADNOC	NOV
Total	Chevron	Shell
Oil Plus	Daleel Petroleum	Petronas
FMC	TUV NEL	BG Technical
Cameron	BP	ProLabNL
Weatherford	Imperial Oil	Saipem
SINTEF	MYCELX	SMS Oilfield
Wintershall	Premier Oil	Siemens Water
SNF	Soiltech	SGS

J.M. Canty Inc.
6100 Donner Road
Buffalo, NY 14094
USA
Phone: (716) 625 4227
Fax: (716) 625 4228

Email: sales@jmcanty.com

J.M. Canty International Ltd.
Ballycoolin Business Park
Blanchardstown
Dublin 15, Ireland
Phone: +353 1 8829621
Fax: +353 1 8829622

Email: sales.ie@jmcanty.com

WWW.JMCANTY.COM

TA12100-1001 Rev. 1