CuDDI

Copper Digital Detection Imaging

VISAYA

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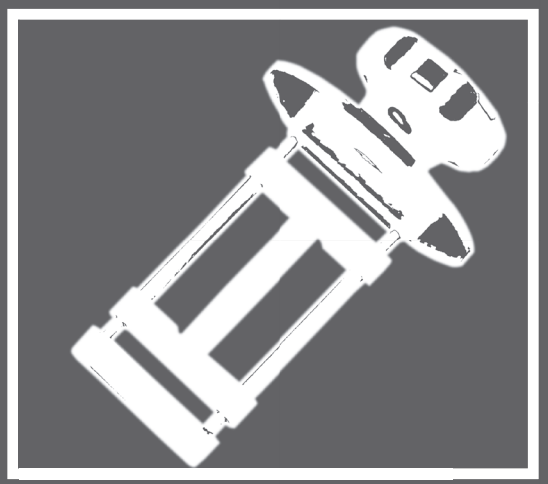
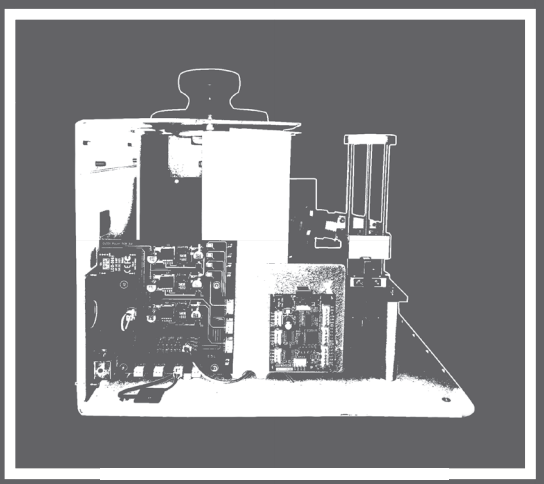
Corrosion to copper has become a critical indicator of sulfur compounds present in crude oils that persist even after refining processes. Measuring corrosivity continues to be a challenge, as no accurate standardized test has been developed to date. Current corrosivity tests involve manual and visual assessments, resulting in human error and bias. The petroleum industry calls for a high-level, high-tech standard for copper corrosion detection.

The new Copper Digital Detection Imaging (CuDDI) instrument from VISAYA Inc. identifies exact levels of corrosiveness present in petroleum products through a 4-step automated vision algorithm and classification process, eliminating operator bias. Results are digitally recorded and are seamlessly integrated with LIMS software.





CuDDI's simplified, procedure provides improved ratings, corrosion testing methods and sample handling over current tests. Using a corrosion detection range of 1a through 4C, outcomes are digitally recorded and seamlessly integrated with LIMS software.

Principle

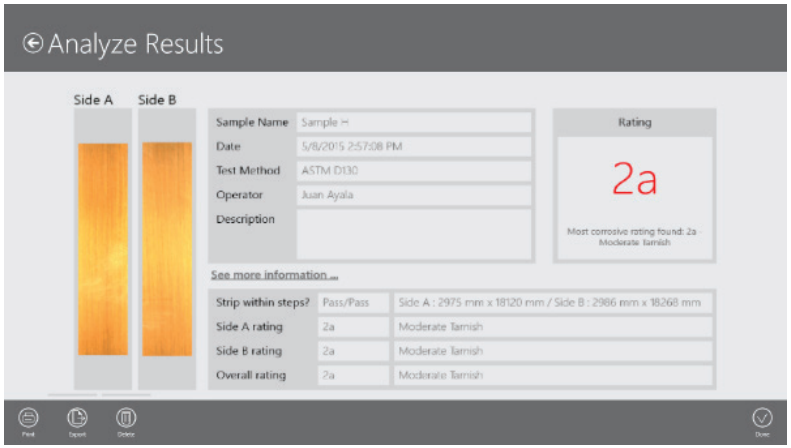
CuDDI's exclusive patent-pending design, takes the guesswork out of copper corrosion detection. It's unique vision algorithm and controlled light box record, calculate and display accurate corrosivity ratings in a matter of seconds. A high resolution camera with sophisticated optics provides higher precision machining and motors for the rotation and analysis of the copper strips. The results are not only a groundbreaking improvement on the rating, methodology and sample handling of current laboratory procedures; they are a new standard for the detection of corrosiveness to copper.

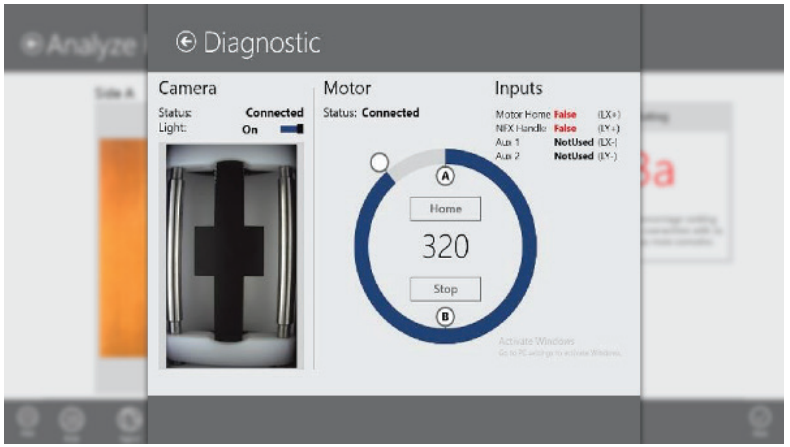
The CuDDI Method

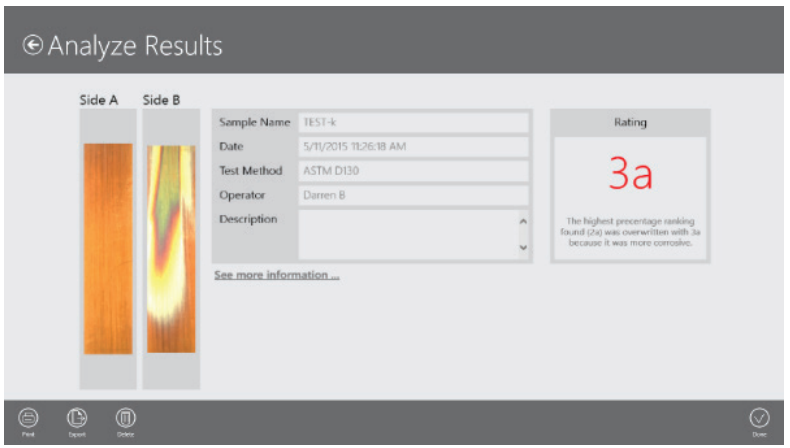
Copper digital detection imaging is a simplified process requiring minimal steps that effect maximum efficiency:

Step 1:	Insert strip into specialized holder
Step 2:	Place holder into instrument
Step 3:	LED light source is automatically activated and regulated
Step 4:	Software identifies first position and captures first image
Step 5:	Software rotates the holder 180 degrees and captures second image
Step 6	Readings are tabulated and processed through CuDDI algorithm
Step 7:	Final results are displayed on a high-resolution touch screen

Final Results are Clear, Concise and Cutting-Edge.







A Better Rating

CuDDI's improvements over current test rating output and analysis include:

- Easy-to-Use Touch Screen Driven Software
- 1-2-3 Button Operation
- Digital Image Logging Complete with Operator Notes and Calculated Results
- Integrated Industrial Computer for Easy Interface with Network
- Direct LIMS Connectivity
- USB, Ethernet and HDMI Outputs

A Better Method

CuDDI's improvements over current test procedures and end results include:

- Removes Inherent Bias with Manual Rating
- Voltage and Current Controlled Light Box for Consistent Ambient Light Environment
- Automatic Detection of Copper Strip Size
- Long-lasting LED Light Source
- Auto Rotation of Strip for full 360 Recording

A Better Sample handling

CuDDI's improvements over current test sample handling and errors include:

- Enables Single-Hand Loading via Copper Strip Slide Holder
- Eliminates Fingerprints and Unwanted Markings on Strips
- Slide Holder Doubles in Functionality as Tool for Manual Verification
- Prompts Operator When Strip Shrinks to Unusable Size
- Provides Auto Recognition of Sides A & B

Technical Specifications

Applicable Test Methods	ASTM D130, D1838, D4048, IP411, IP145, ISO2160, ISO6251
Corrosion Detection Range	1a, to 4C
Display Units	Color, ASTM Rating and Strip Size
Detection Method	Patent Pending CCD Digital Detection
Precision	+/- 0.25% of Raw Reading
Optical Design	Patent Pending Optical Arrangement
Light Source	LED 3 7,000K (White), >90% CRI
Measuring Time	< 30 Seconds per Side (90 Seconds Max)
Calibration	Vision Calibation with Standard
Display	10.1” Projective Capacitance Touch (Multi-Touch)
Interface	Ethernet x2, USB 3.0 x1, USB 2.0 x4, HDMI, VGA, USB Printer, USB Mouse and Keyboard
Memory/Storage	64 GB SSD Storage
Temperature Range	10° to 35° C
Humidity	Up to 85% Non Condensing
Power	Auto-switching 90 ~ 264VAC, 47 ~ 63Hz, 280 Watt Power Supply
Space Requirements	80 mm (3”) on Sides and Back
Dimension	350x300x270mm (14x12x11”)
Gross Dimensions & Weight	Weight 10 Kg. (22lbs.) 400x350x530mm, 15 Kg. (15x14x21” 33lb.)

FULL SPECS AND OPTIONS AVAILABLE AT WWW.VISAYAINC.COM

Accessories

1st Year

Copper Strip – Extra Thick, Longer Lasting

Copper Strip – Extra Thick, Longer Lasting /with Hanging Hole

Polishing VISE – Holds 6 Strips

Test Tubes, 25-mm x 150-mm, Dozen

Viewing Test Tube, Each

Silicon Carbide Sheets, 150-Grit, 50 Pack

Silicon Carbide Sheets, 240-Grit, 50 Pack

Silicon Carbide Grains/Powder, 150 mesh, 450 grams

ASTM Color Standard (Method Requires Two)

Test Pressure Vessels, For use with Volitale Samples

Test Pressure Vessels, for LPG Samples, Two Valves

2nd Year

Replacement NFX Handle (Integrated Motor)

CuDDI calibration standard. Used as daily QC/Validation and calibration of camera & motor position. Supplied in storage case with certificate valid for one year

VISAYA Products

AgDDI
Silver Digital Detection Imaging

AgDDI provides standardization to the current visual determination as referred in ASTM D7671 and gasoline fuel specification ASTM D4814 while using a four-step automated vision algorithm and classification process to eliminate user bias.

CuDDI
Copper Digital Detection Imaging

CuDDI's simplified, breakthrough procedure provides improved ratings, methodology and sample handling. Using a corrosion detection range of 1a through 4C, outcomes are digitally recorded and seamlessly integrate with LIMS software.

FeDDI
Iron/Rust Digital Detection Imaging

FeDDI provides an complete automated method, which replaces the inherently difficult visual quantification referenced in NACE TM0172 and ASTM D665 while using a four-step automated vision algorithm and classification process to eliminate user bias and provide repeatable results.

FoamDDI
Foam Digital Detection Imaging

FoamDDI accurately controls the air flow, temperature and sequence, which is then augmented using a unique VISION algorithm to accurately determine the height of static and dynamic foam heights, while greatly improving the precision and accuracy.

Ask for a Demo Today:
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