

# ETHYLENE FURNACE HIGH TEMP CAMERA

System Description and Benefit Analysis

## HT Camera Technology

- Thermal Design
- Material Design
- Electronic Design
- Typical Installation
- Viewing Perspectives
- Analysis Capability

## Canty High Temperature Camera



### FEATURES

- No cooling air required. Air is used for cleaning only!
- Disposable Quartz Protective Shield
- High Temperature Furnace Lens - Models Up To 3000°F
- Auto Electronic Iris
- High Quality Quartz Optics
- Fused Glass Seal Separates Electronics From Process
- Insertion Lens Available Up To 36" Long
- Non-Blooming CCD Camera - Color, B & W

### APPLICATIONS

- Furnaces
- Power Boilers
- Black Liquor Recovery Boilers
- Incinerators
- Kilns
- Melting Chambers

## Thermal Design

- Comprehensive thermal design optimizes installation, material and configuration parameters into a cohesive system that is able to withstand extreme environments.
- Uncoupled lens design.
- Sealed housing

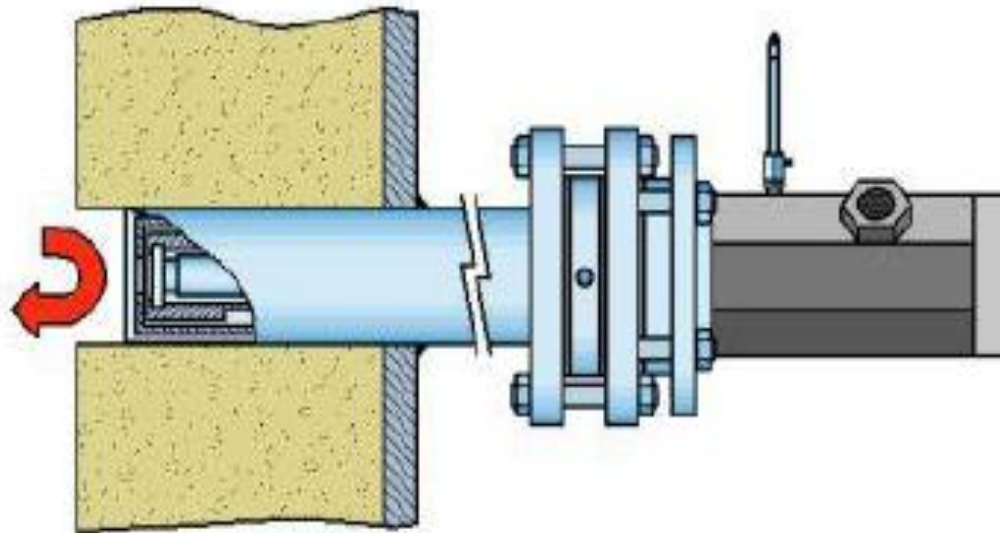
## Material Design

- High alloy internal metals
- Quartz lenses
- Replaceable objective
- Replaceable quartz shield

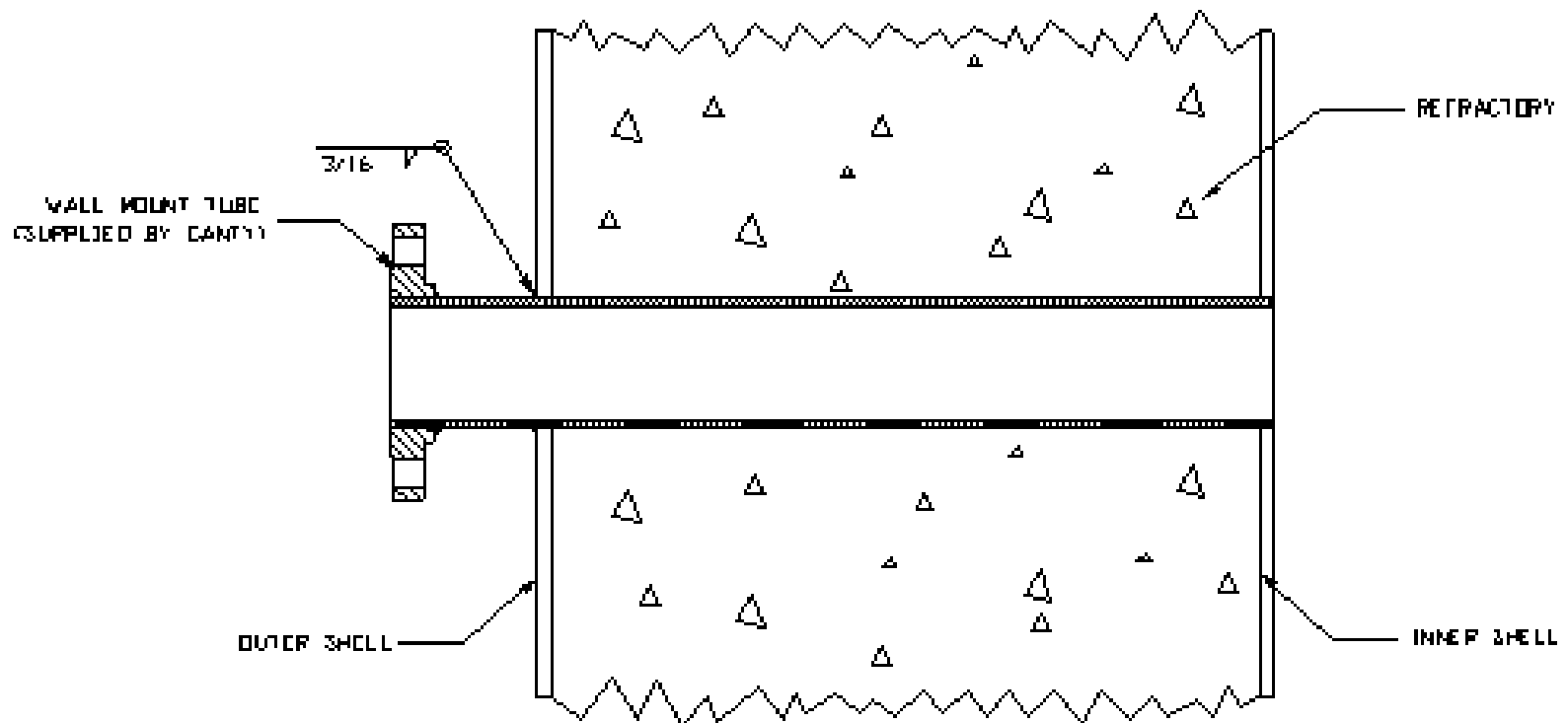
## Electronic Design

- Ethernet based electronics for easy distribution.
- WP or EXP rated systems.
- Software provides flame size, temperature or color analysis.

## Installation

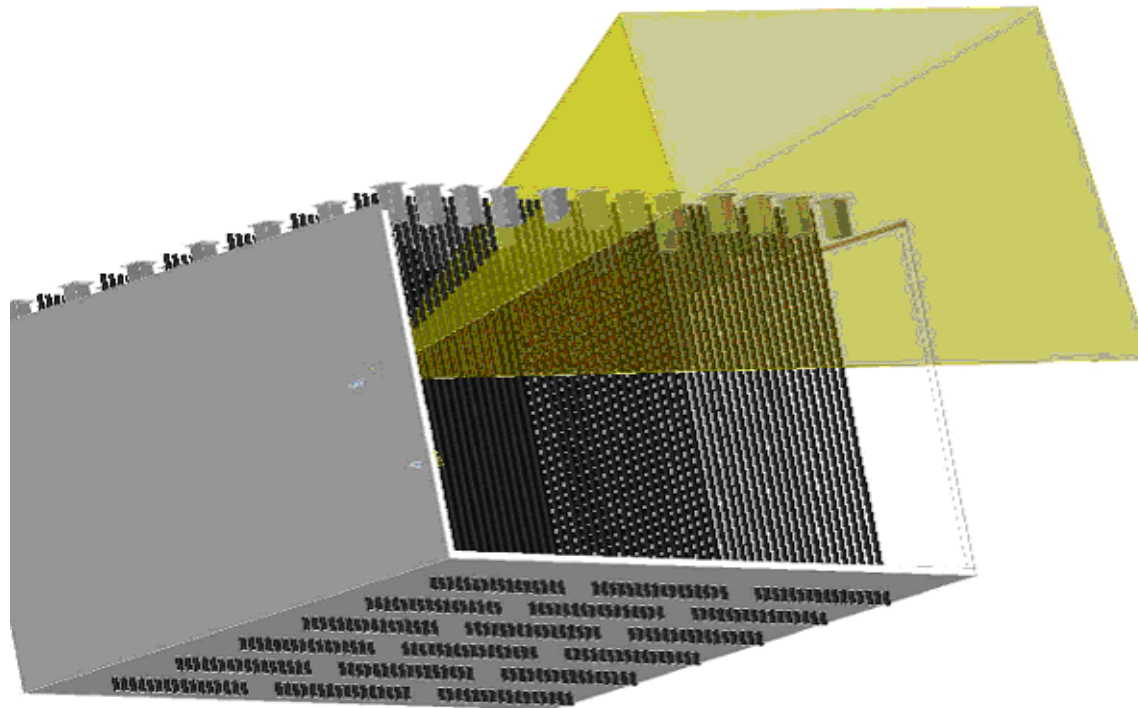


## Refractory Installation





## Tube / Flame View



## Analysis Capability

- Flame detachment and size
- Flame Color / Temperature
- Upset detection analysis
- Hot / Cold spot analysis

## Flame

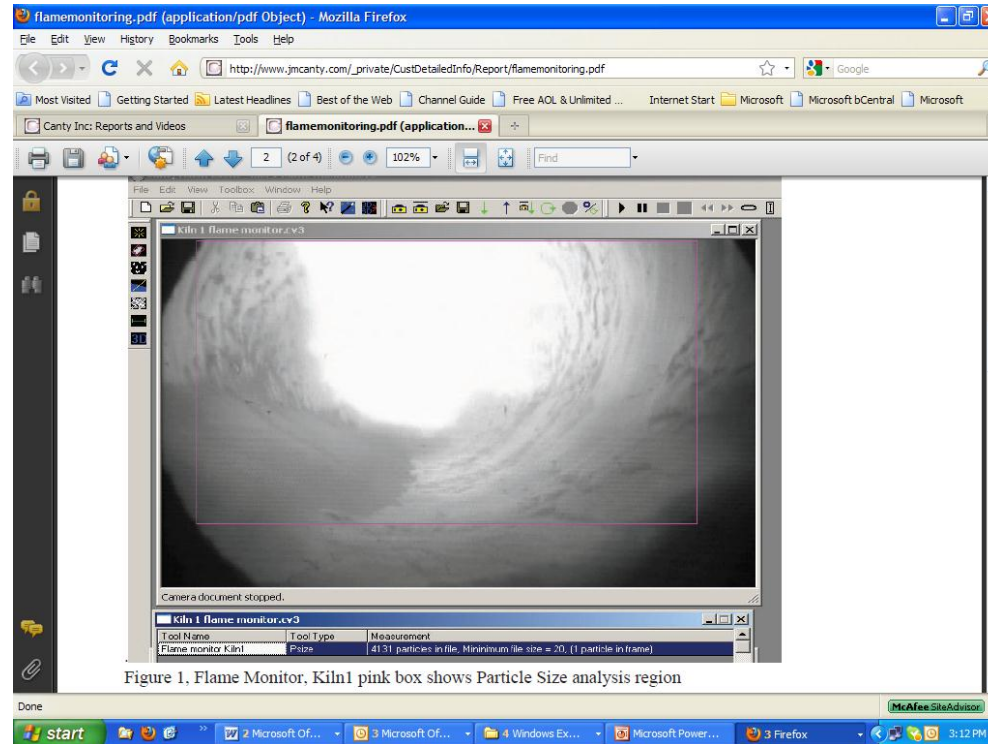
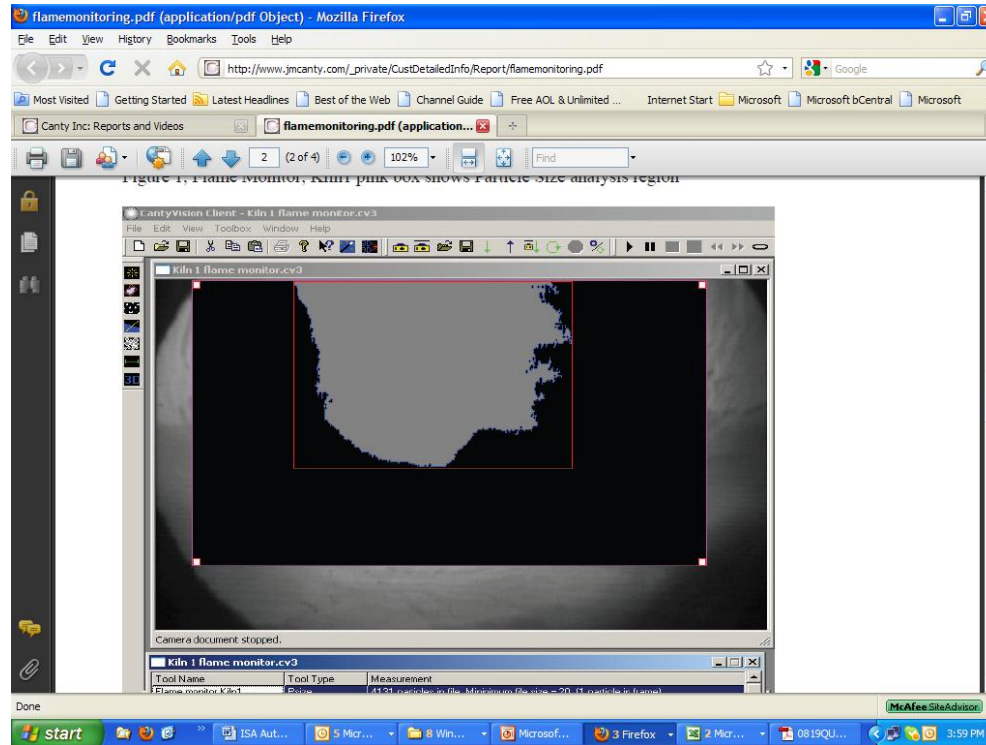
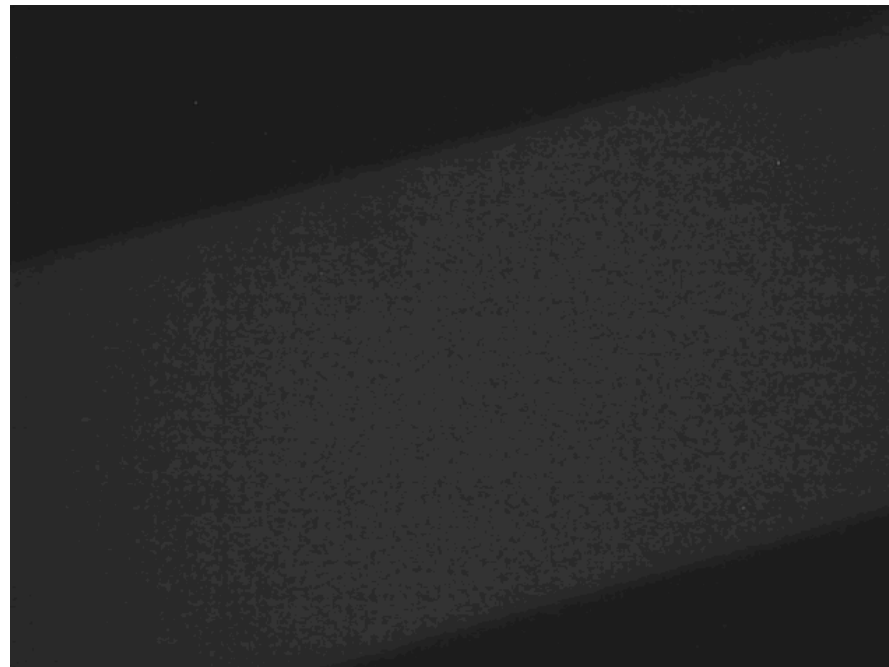


Figure 1, Flame Monitor, Kiln1 pink box shows Particle Size analysis region

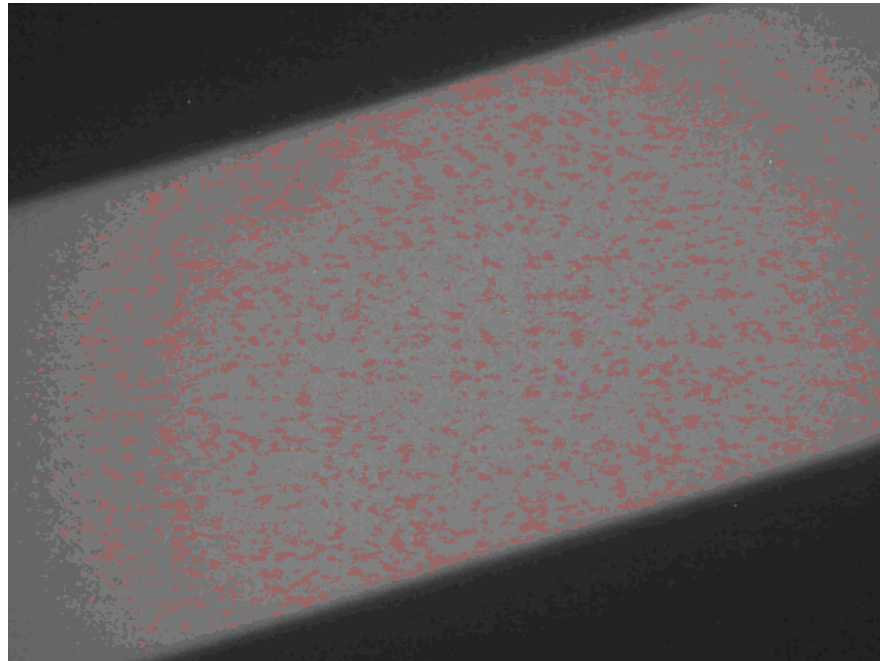
## Flame Image Digitization



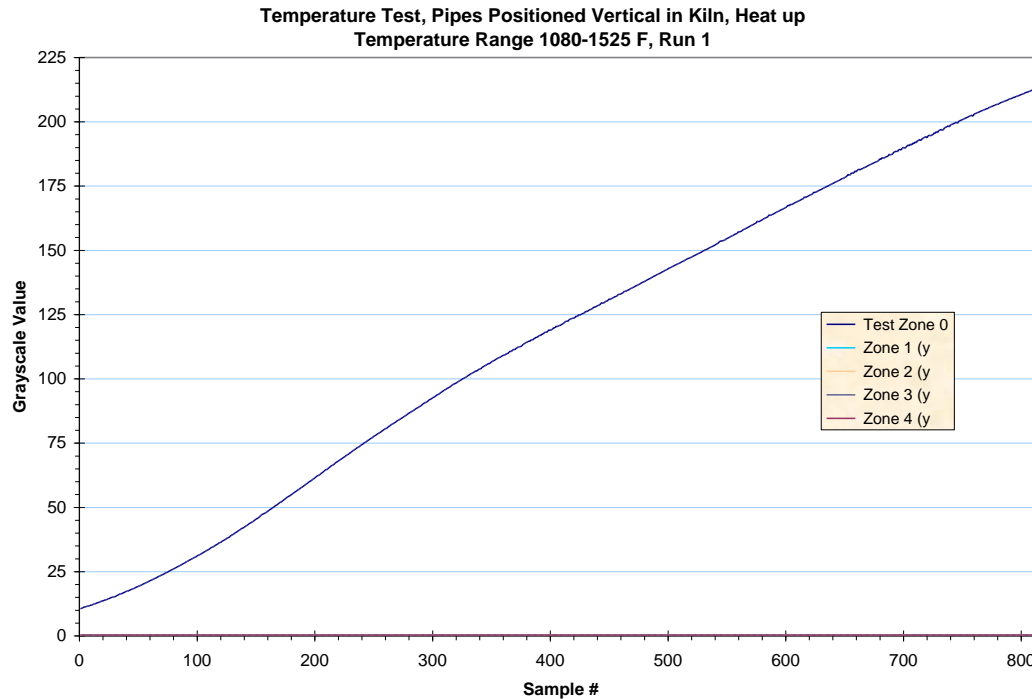
# Temperature – Element @ 850 F



# Temperature – Element @ 1000 F



# Software Analysis; 850 – 1000 F



## Benefit Analysis

- Safety – detect upset conditions in real time and take action to minimize effects.
- Flame Detachment – continuous view of the burners allows analysis of the flame condition.
- Flame adjustment – much more efficient