

02-***-CCU
→ 02-BPM-IHS
02-WRR-IHS
02-MZR-IHS



JUNE 18, 1979

R. L. BRUNNER

Attached is a summary and interpretation of the three preliminary CCU studies at Deer Park, Wood River and Martinez. I basically agree with this summary.

Attachment

cc - See attached distribution list

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Dane

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SUMMARY OF INDUSTRIAL HYGIENE
EVALUATIONS DURING CAT CRACKER TURNAROUNDS

SUMMARY

Because of a concern for personnel exposure to air contaminants, the working atmosphere was monitored at three Manufacturing locations during major catalytic cracker turnarounds in 1978.

The results of these surveys indicate that personnel exposure to catalyst dust and metal fumes should be considered during future CCU shutdowns and in the design of new CC units.

DISCUSSION

During the surveys, all sampling was done external to any respirator or welding helmet. Respiratory protective devices were used during much of the monitoring and welding faceshields were in place during welding and cutting operations. Some investigators have reported significant protection to the welder from the faceshield diverting the smoke stream away from the breathing zone. For these reasons, the following comments, based on the monitoring results, would be applicable to unprotected workers.

- Air arc gouging may generate total particulates, iron oxide, copper, nickel, total chromium and hexavalent chromium in excess of existing standards while cutting in vessels such as cyclones, plenum chambers, spent catalyst risers and even in larger vessels with ventilation "dead" spots.
- Coated electrode welding may not result in excessive levels of dusts and fumes in enclosed spaces with ventilation roughly equal to 2000 cfm/welder. However, occasional excursions above the hexavalent chromium limit may occur during stainless steel welding.
- Refractory removal may generate refractory and trapped catalyst dust in excess of the nuisance particulate limit in most situations.
- Chipping coke deposits in the reactor may generate dust levels in excess of the TLV for Particulate Polycyclic Aromatic Hydrocarbon.
- Removing asbestos containing insulation releases asbestos fibers into the atmosphere and appropriate precautions must be taken.

RECOMMENDATIONS

● Future cat cracker turnarounds (or other major maintenance turnarounds) should include industrial hygiene input early in the planning stages that may include:

- Review of health implications and pertinent exposure standards (PEL's, TLV's) for materials used or encountered during the shutdown.
- Ventilation (general and local).
- Work practices including purging and cleanout procedures.
- Personal protection program to prevent exposure where other control methods are not feasible.
- Training for engineering field and safety inspectors on health implications of the planned work.
- Contract considerations to assure the contractor is aware of the health implications and his responsibilities.
- Dust suppression techniques.

● Future vessel (unit) design should consider health exposure control strategies for major maintenance work such as:

- Adequate openings for entry and ventilation.
 - Purging, draining, dust removal facilities - initial and throughout the shutdown.
 - Assembly that allows greater access and prefabrication flexibility in "frequently repaired" items.
 - Increase the weighting of the "ease of repair" criteria in evaluating alternative designs or materials.
 - Amount of and means for providing general ventilation.
- Develop or follow state-of-the-art improvements:
- Ventilation techniques.
 - Welding or cutting techniques that minimize exposures.
 - Portable local exhaust systems - separate or integral with welding equipment.
 - Respiratory protection.

- Consider further Industrial Hygiene surveys of major cat cracker turnarounds to broaden and extend the data base.

- Catalyst dust exposures during the shutting down phase.
- Coke dust or fractionator oil exposures.
- Asbestos exposures during old insulation removal.
- Evaluation of other potential exposures - gases, vapors, noise.
- Evaluate additional welding tasks.

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6/13/79

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LAM 031701

Rich. De Luca - (C.C. H.J. McD.)
6/15/77
02-xxx-ccv
Done for

Attached is a copy of the brochure for the Entette / your request.

The sales group owe me a demo with a 45' hose and with a "Y" with 2-15' suction hoses.

They also owe me info on:

a. Type of filter media - They claim removal of 90% of Fluorides for some unknown reason as they don't claim gas removal.

b. Efficiency claims for 45' sections.

c. Efficiency of 99.7% to what particle size

They talk about saving heat energy by using inside a room. I'm not sure I'm ready for that until the filter efficiency and gas generation is better known.

Anyway I was impressed that each attachment would capture the total fume at ~4.5" using a 15' long section of 1 3/4" hose. More than I anticipated.

We would still have a problem using with non magnetic stainless. Maybe suction cups would work or a carbon steel stand or a helper could hold it. L.C.

ABS-011646

LAM 031702



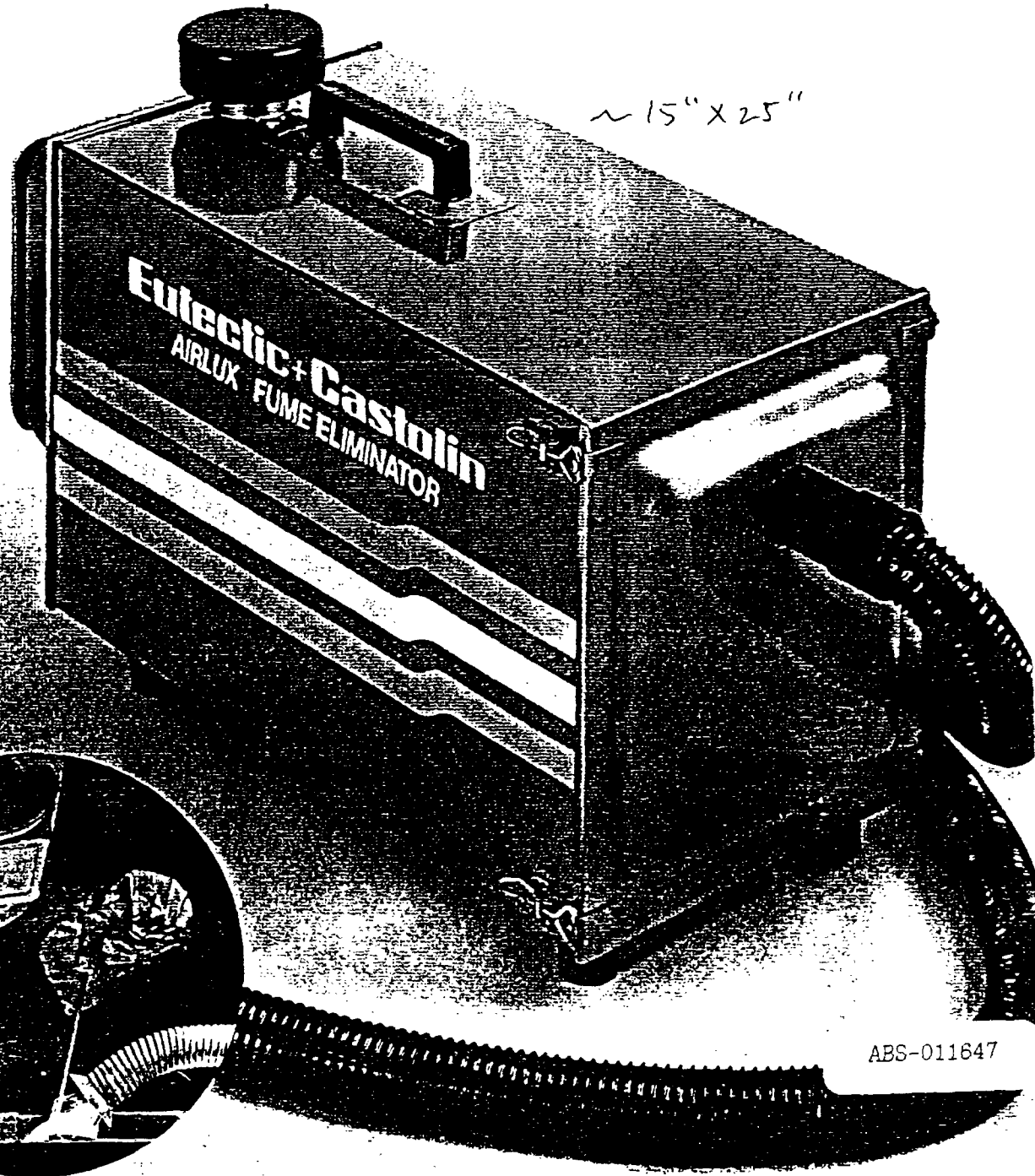
EUTECTIC + CASTOLIN

John W. Cain
Applications Specialist

EUTECTIC CORPORATION
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Los Angeles, Calif. 90040
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See
L S COTTON

AIRLUX WELDING FUME ELIMINATOR

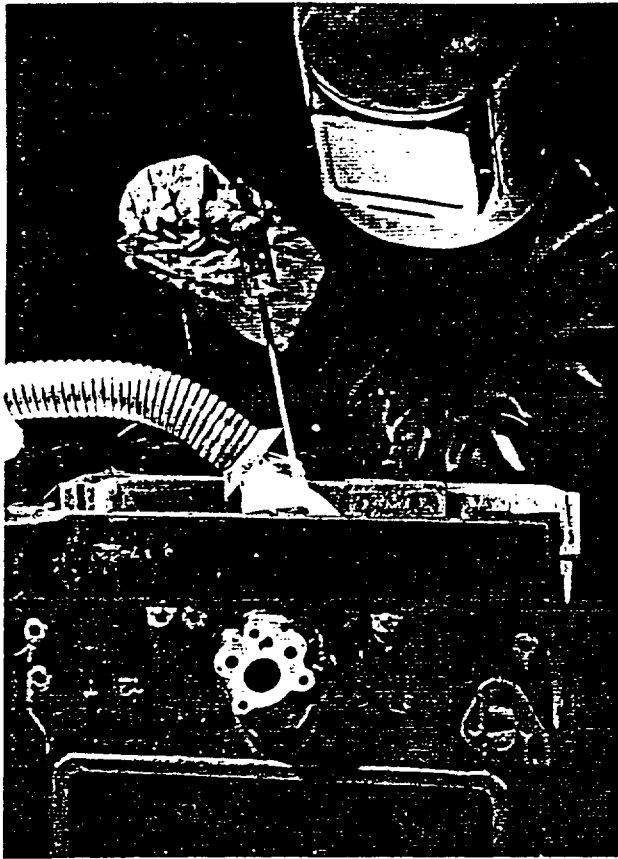


ABS-011647

REMOVES FUMES AT THE SOURCE

LAM 031703

Portable AirLux Fume Eliminator



WITH AIRLUX FUME ELIMINATOR



WITHOUT AIRLUX FUME ELIMINATOR

Clean the air... and see your way to greater weldor productivity

It's true. When you clear the air, weldors see better, feel better, work longer, and the quality of their work improves. And the productivity of people working nearby increases in a pleasant environment.

A Eutectic + Castolin AirLux™ Welding Fume Eliminator removes fumes and smoke at the source. It is portable, which means it can be carried to any job - wherever it may be - in the shop, in confined areas, on the production floor, even in the office. Welding jobs can be done anytime, any place, without disrupting work schedules.

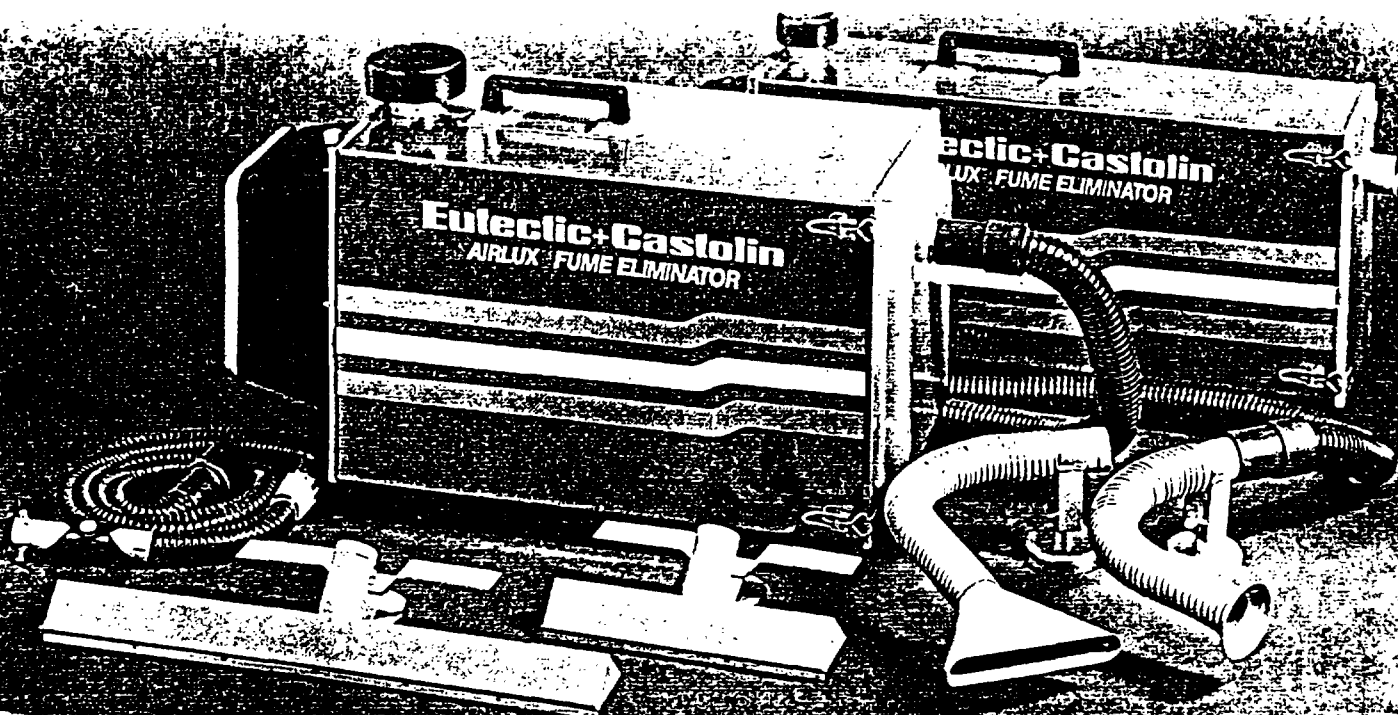
And the AirLux Welding Fume Eliminator can

save in other areas. There is no need to vent expensive plant heat as with other methods. And you'll never have to move permanent venting systems as your production needs change... the AirLux Fume Eliminator gives you the flexibility to adapt to any change, any challenge.

Consider cost effectiveness. The AirLux Welding Fume Eliminator is priced well below other, less versatile systems. AirLux filters normally operate effectively for 3 to 6 months and can be changed in seconds by the weldor, and the unit is virtually maintenance-free. (Servicing can be done easily by your own plant staff or by your Eutectic + Castolin Applications Specialist).

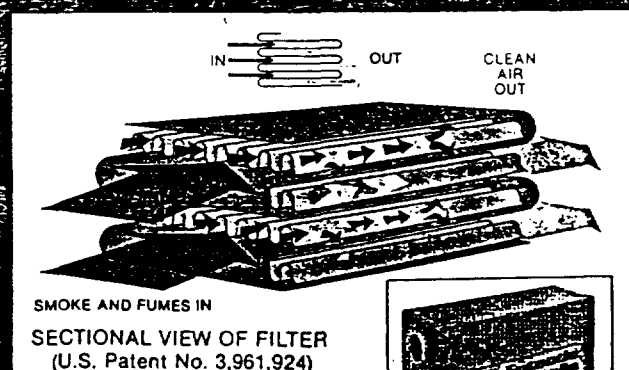
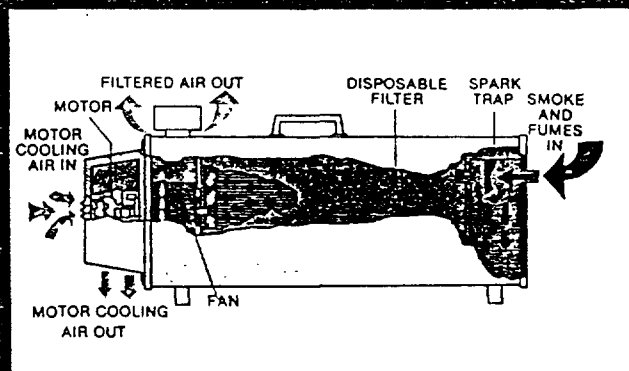
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LAM 031704



The Eutectic+Castolin Portable AirLux Fume Eliminator

- Patented filter removes up to 99.7% of all particulate matter from welding fumes.
- Removes smoke and fumes where they are produced, before they are dispersed in the room.
- System efficiency does not depend on air-tight filter housing required by some other systems; the housing can even be punctured accidentally and performance will not be affected.
- Motor will not burn out if hose becomes clogged or blocked - it has its own independent cooling system.
- Motor is protected from infiltration by metallic particles that are prevalent in welding fumes.
- Motor is UL listed.
- Two models available: Model 803 for stick welding applications (it is powerful enough to operate effectively with two hoses and nozzles), and Model 821 for open-arc, GTA and MIG welding processes; it uses a gun-mounted nozzle.
- The larger Model 803 weighs only 44 pounds, light enough to be carried anywhere; lightweight, flexible, 15-foot (or longer) hoses provide welding fume protection in confined spaces or on top of large structures.
- Large capacity filters operate with high efficiency for up to three months before replacement is required. Replacement is clean, easy, fast; no bags to shake out, no messy collector plates to clean.
- The Eutectic+Castolin AirLux Welding Fume Eliminator is energy-efficient - saves energy by recycling heated air.



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