

Enercon Industries Corporation

Making Your Job Easier- Understanding the Basics of Surface Treatment

Presented by

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***Application Engineering
Surface Treating Systems***

surface treating

ENERCON

Enercon Industries

Enercon is the leading global supplier of surface treatment systems for a variety of markets.



Enercon Headquarters
Menomonee Falls, WI
(established 1974)

Enercon Technical Center
Germantown, WI
(established 1997)



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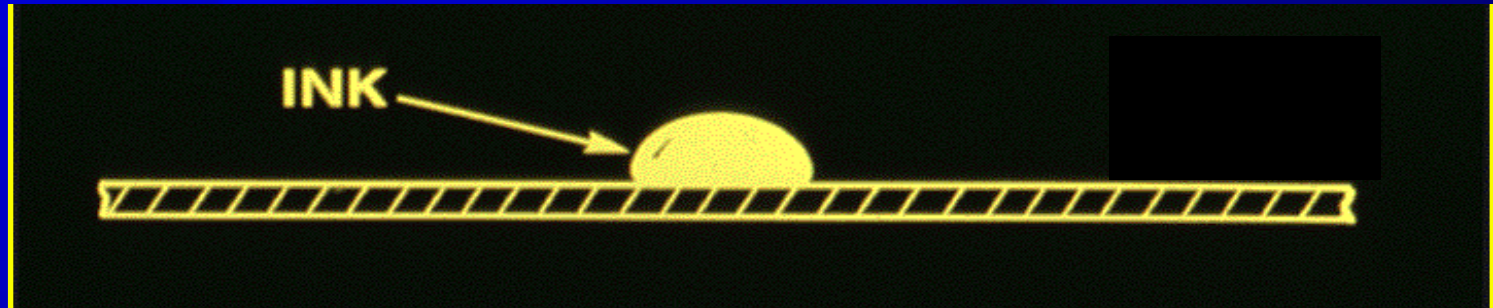
Measuring

Wettability & Adhesion

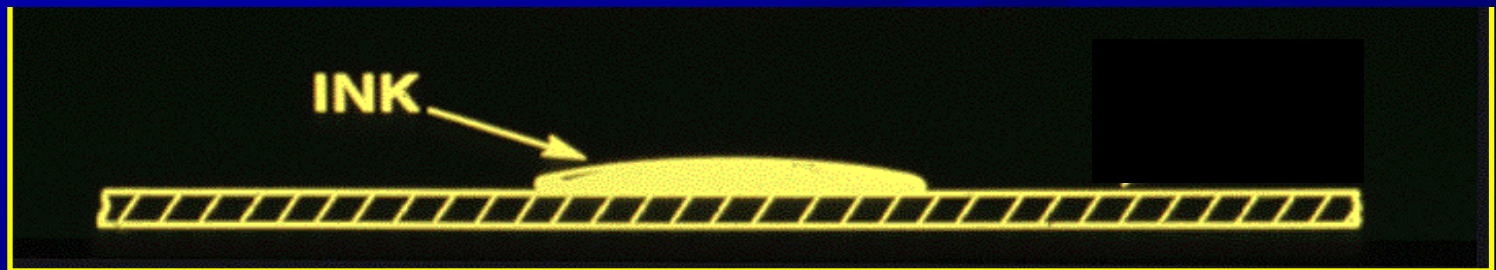
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Untreated Substrate vs. Treated Substrate

Untreated Metal

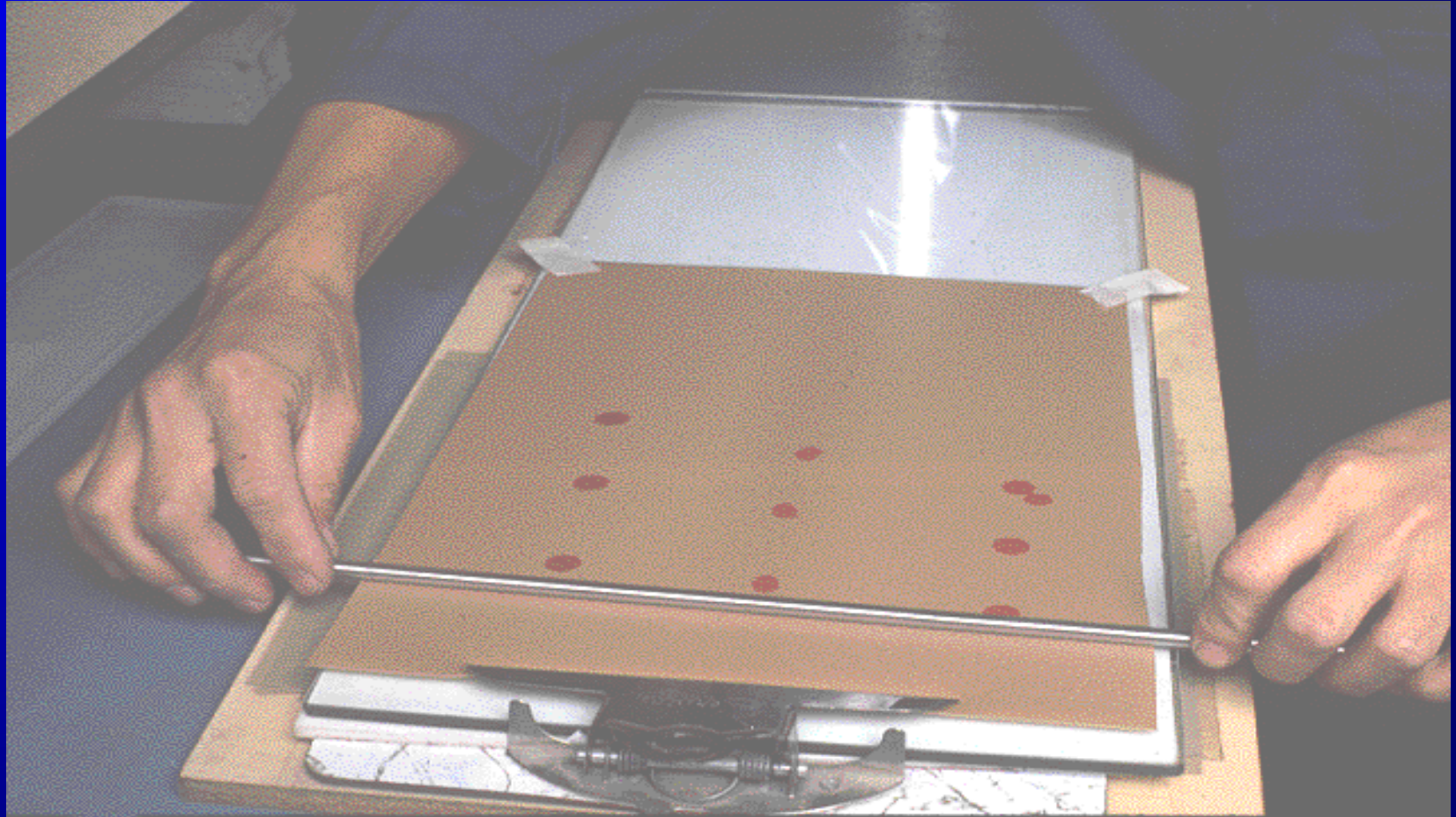


Treated Metal



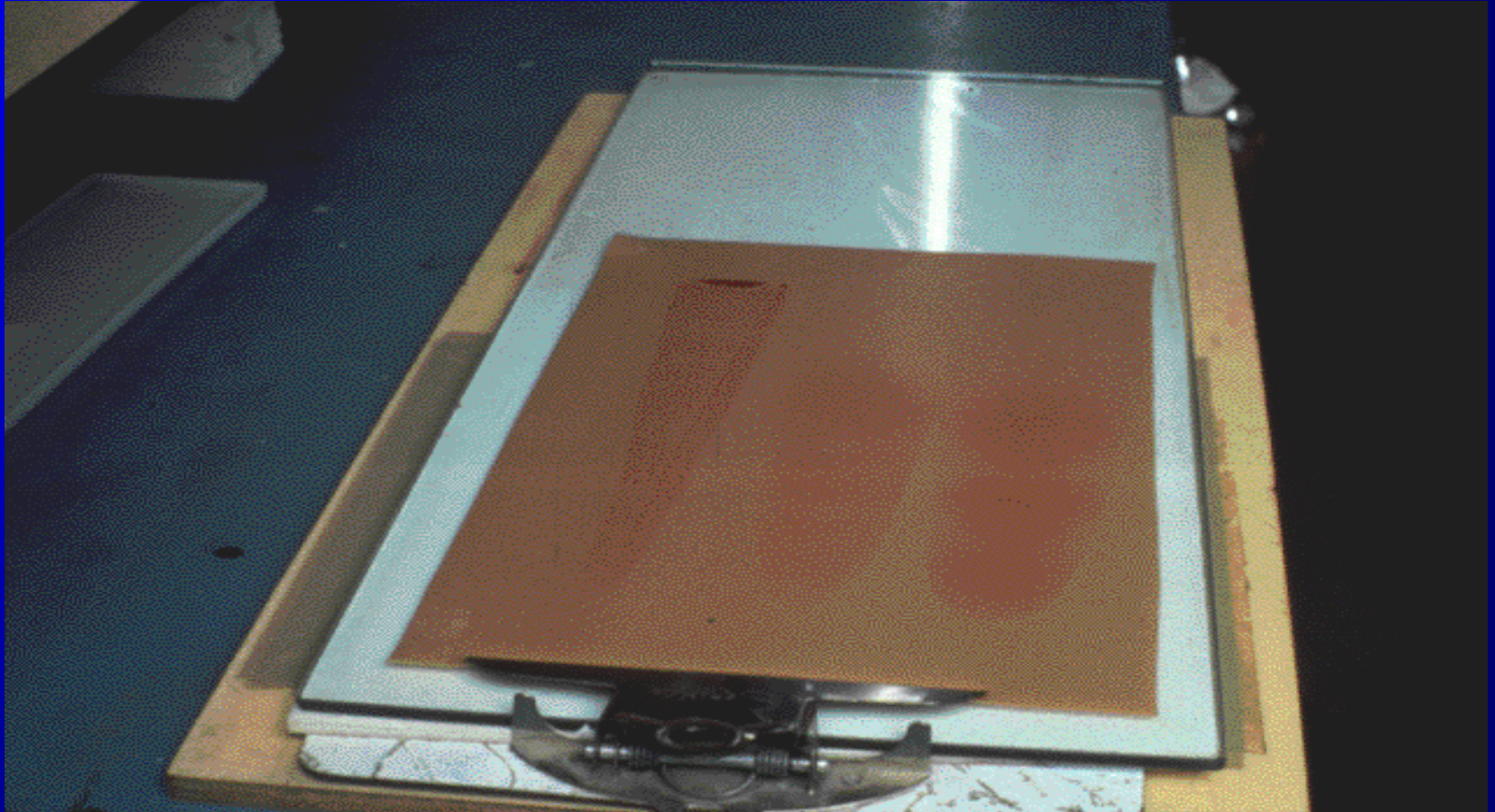
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Apply Dyne Solution & Begin Draw-down



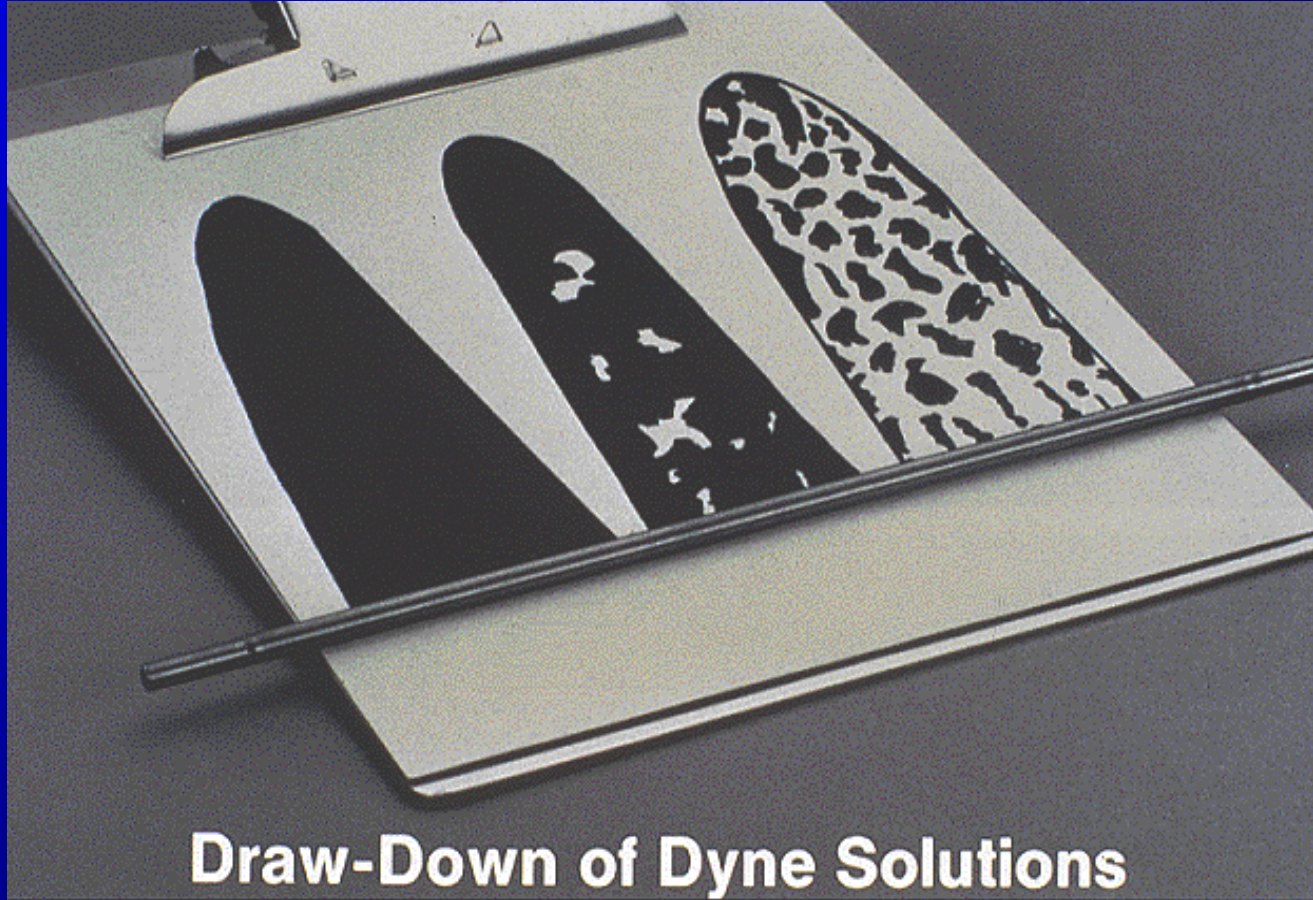
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Completed Draw-down



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Discussion of Dyne Test Results



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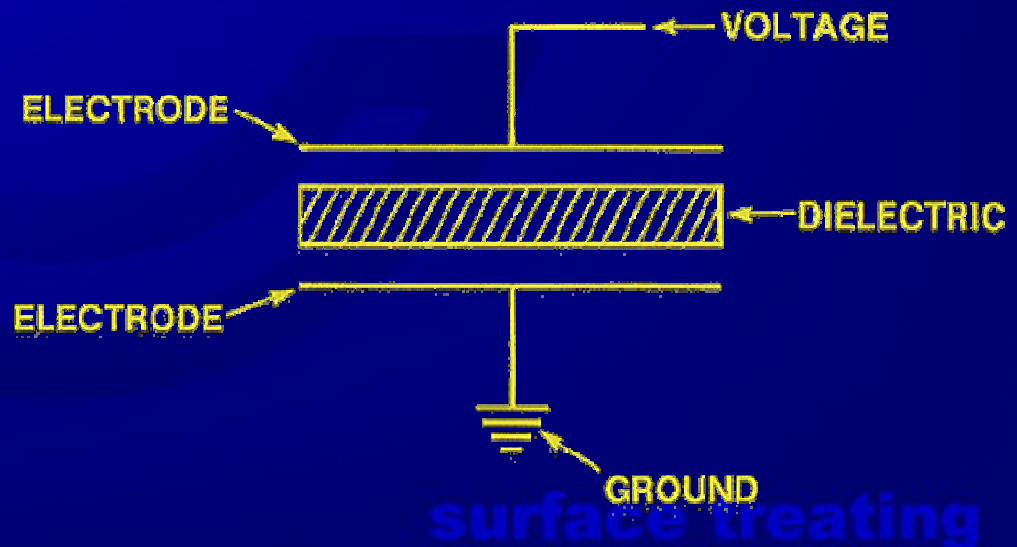
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Corona Treatment

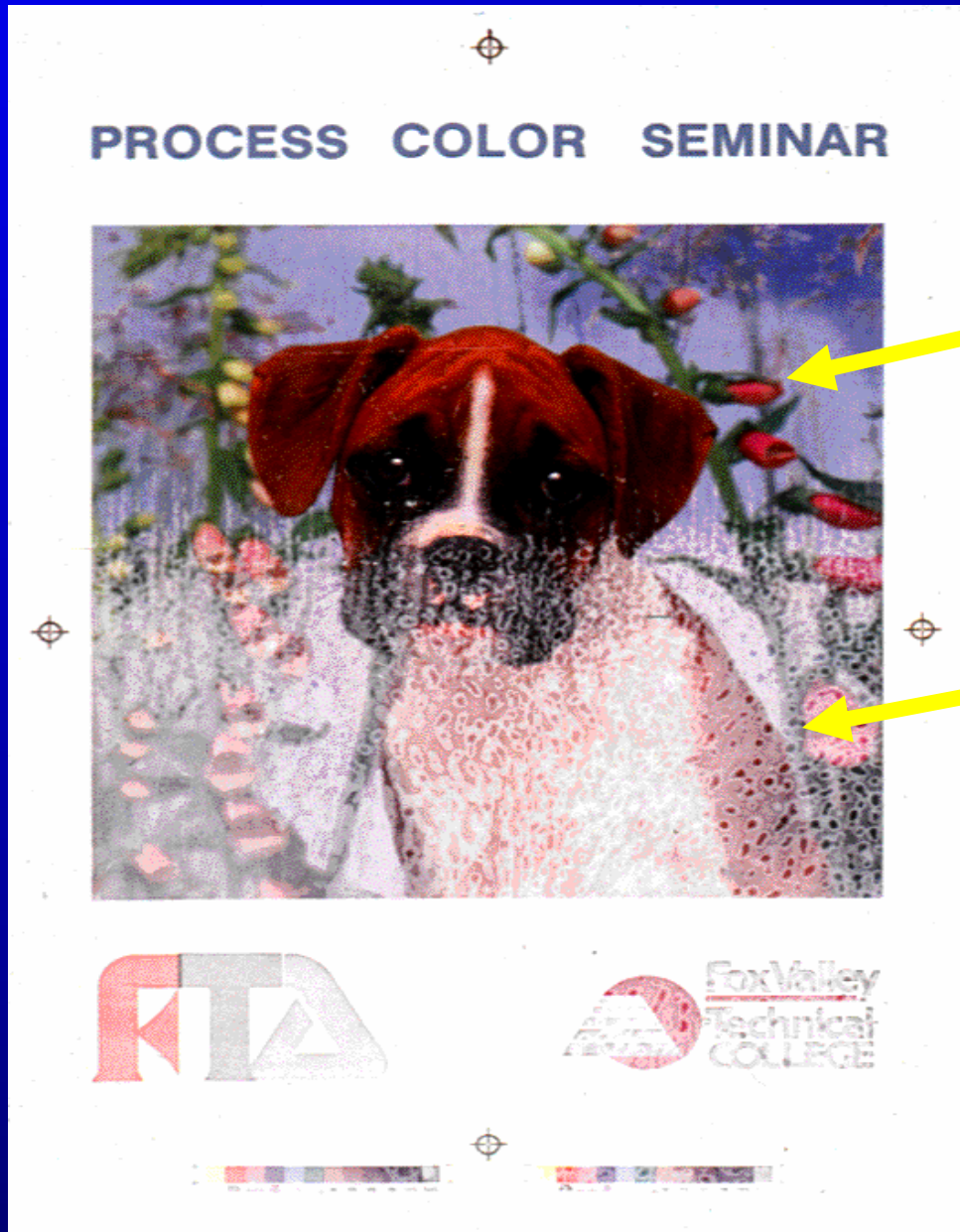
What is it?

- A custom made system designed to increase the surface energy of a substrate so that inks, coating and adhesives will “wet-out” and adhere to the surface.
 - corona treatment only has an effect on the surface it does not “go through” the material.

- Capacitor....
The simplest form of a what a corona treater is.

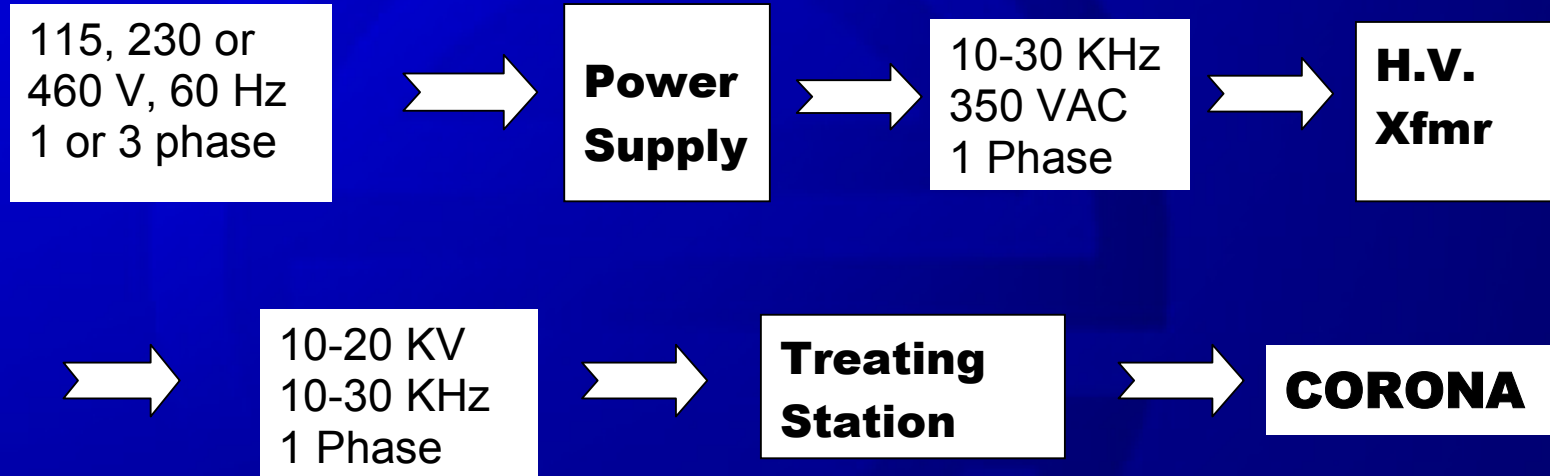


Corona Treatment



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The Corona Treating System

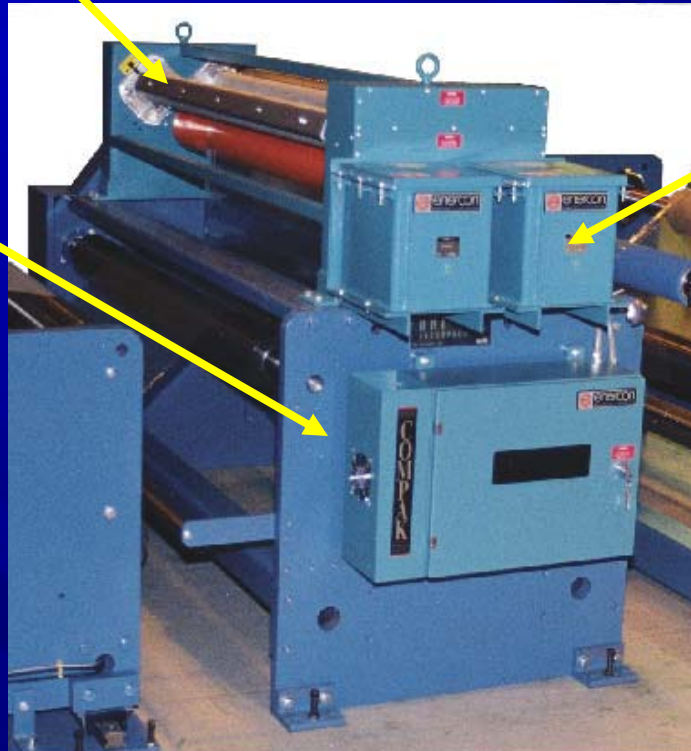


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Corona Treatment

What comprises a corona treater?

- The process utilizes three components
 - a treating station
 - a power supply



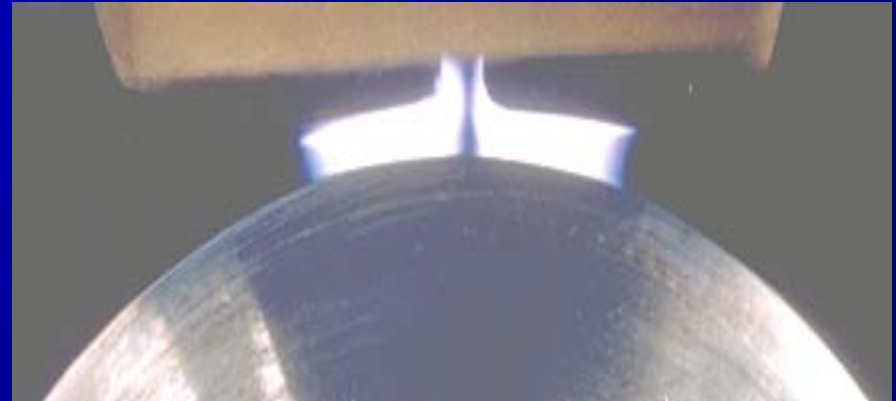
- a high voltage transformer

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Ceramic Electrodes

Benefits

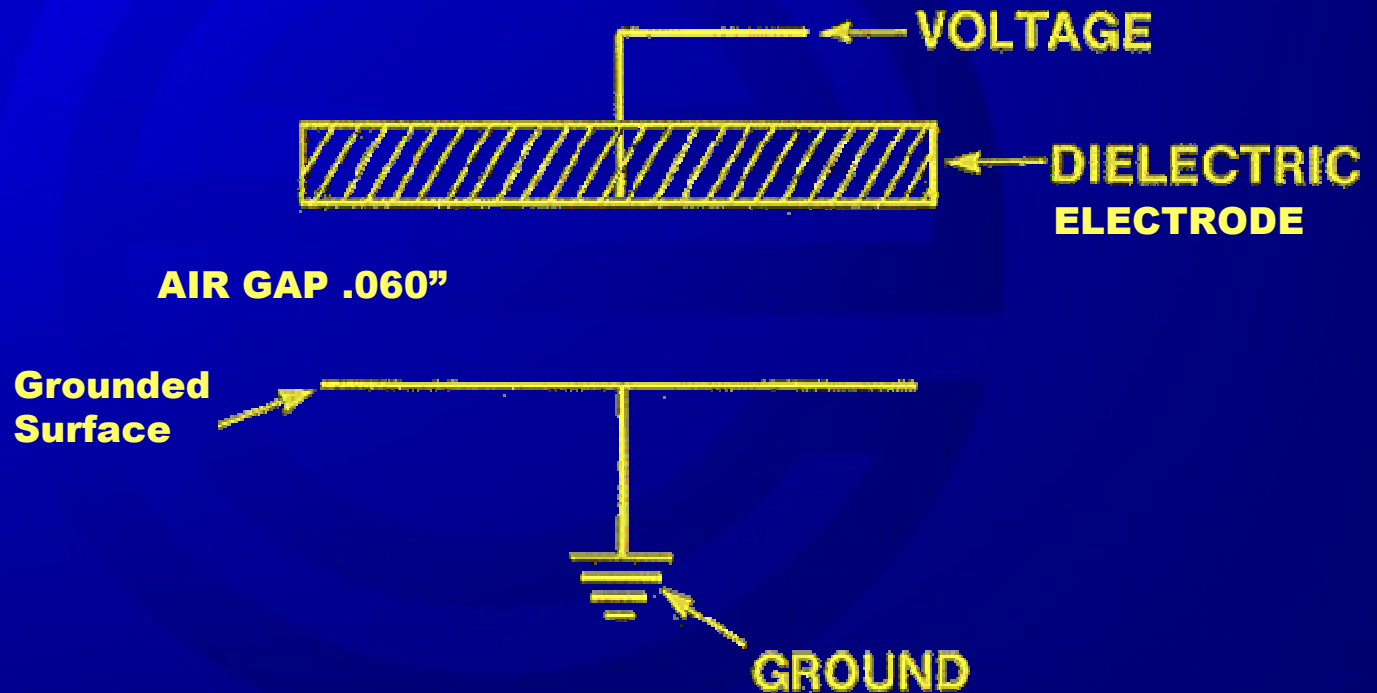
- can treat any substrate.
- safe
- no insulated covering to fail
- open design



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Corona Treatment – Insulated Electrode

What is it?



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Corona Treating System

Station Components:

- Power Supply
- Electrode Assembly
- Ground Roll
- Interlocks
- Ground Brush
- Optional Items



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Corona Treater for Sheet

- Electrode Assembly
- Vacuum Table
- Controls
- Power Supply



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Ozone (O₃)

- Ozone is a by-product of the corona process.
- Ozone must be evacuated from the corona treater and out of the work area and building.
- In some cases ozone may not be directly vented to atmosphere. An elimination system is required.

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Ozone Decomposition Systems

- Insures compliance with OSHA and EPA Clean Air Act ozone standards.
- Three Stage Filtration System
- Permits direct release of exhaust stream to the atmosphere.
- Eliminates 99.999% of Ozone from the Exhaust Stream from Corona Treating or other ozone generating processes.

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Ozone Decomposer

- **Operation:**

Ozone contaminated air is input at the top of the unit and flows through the particle filter. Here, particle matter and dust is removed to ensure it does not contaminate or clog the catalyst bed. The contaminated air then passes through a pre-filter material prior to the catalyst bed for additional air stream filtration. The ozone contaminated air then moves through the bed of metal oxide pellets which converts the ozone (O_3) into molecular oxygen (O_2). If no other contaminant is present, the exhaust can then be vented into the atmosphere.

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Ozone Decomposition Systems



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Summary

- Corona treatment cleans the surface to increase surface tension.
- Dyne solutions are used to test for changes in surface tension.
- A corona treating system consists of a power supply and a discharge station.
- Treating systems are specifically made to fit each application.

Summary

- Ozone (O_3) is a by-product of the corona process and is to be vented from the workplace.
- Ozone decomposers convert O_3 to O_2
- Ozone Decomposers insures compliance with OSHA and EPA Clean Air Act ozone standards.

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**Additional information can
be found at**

www.enerconind.com

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Understanding Corona Treatment

- Any Questions?
- Thank-you IMDA attendees for your attention and interest in Enercon Industries Corporation.



INTERNATIONAL METAL DECORATORS ASSOCIATION

A MEMBERSHIP CORPORATION PROMOTING THE INTERESTS OF
LITHOGRAPHERS, DECORATORS, AND TRADE SUPPLIERS INVOLVED
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