You can lead an application to technology but that doesn't mean it will work

Tom Gilbertson
VP Application Engineering

The title of this article says it all. There are a host of surface treating technologies available, but ultimately your application will determine which technology is best.

The Enercon laboratory is a great place to put your application to the test. With the addition of flame surface treaters Enercon offers the industry a single source for a laboratory evaluation of corona, flame and atmospheric plasma. The benefit to you is comparable results in a controlled and unbiased environment.

How important is laboratory testing? Well consider this; many of our breakthroughs with atmospheric plasma have occurred during testing and experimentation with customer's substrates. As a result some of our customers are now doing things with atmospheric plasma surface treatment that were previously unthinkable.

In other cases corona proves to be the best technology for the application. Allowing our customers to test the differences within a technology is equally important. Bare-roll, universal-roll and covered-roll corona treating systems all have properties that distinguish themselves from one another.

Now that we offer flame treatment we can also fairly evaluate and compare that technology as well. Within the technology we can test different burner types to determine which will work best for your application.

Enercon's lab features corona, plasma and flame treating up to 60" wide and 1,000 fpm .

In addition to the different types of treatment technologies there are also a wide range of options and features that can make or break an application. Correctly sized power supplies and proper web handling techniques are critical.

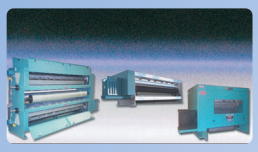
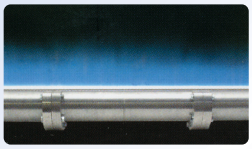
So the next time you're considering a surface treater give us a call. We'll provide the testing you need. And your application will determine which technology is right for you.

For now, take a look at the chart below. It provides a nice overview of how different technologies match up to different applications.

Application	Technology
Converting	• Most use bare and universal roll corona treating • High speed foil converting and metallization use flame • Extrusion coating and laminating rely on ozone generation, flame, corona or a combination of all three • Difficult to treat and engineered material applications use Plasma
Extruding	• Most standard width applications use covered rolls with either stainless tubes or segments for lane treating • For high speed or ultra-wide BOPP, PET, OPP, PE and co-extruded film applications flame, corona or a combination of both treatments are generally used • Difficult to treat and esoteric applications use Plasma
Paperboard/ PE coated paperboard	• Most use flame to raise surface energy and burn off unwanted fibers
Difficult to treat (and surface functionalization)	• Plasma is used for engineered films, papers, foams, nonwovens, wovens, fibers, metals & powders. In addition to being able to raise the surface energy this technology also functionalizes surfaces.

originally appeared in E-News Surface Treating Newsletter 2nd Quarter 2003
Enercon Industries Corporation (262) 255-6070 www.enerconind.com

Enercon Web Surface Treatment Processes Comparison

	DESCRIPTION	ADVANTAGES	DISADVANTAGES
CHEMICAL PLASMA 	• The electrical ionization of various gases • Undifferentiated cloud of ionized gas; no filaments • High density, high pressure plasma • Cleaning, etching, crosslinking and deposition	• High treatment levels • Low treatment decay rates • No backside treatment • No pin-holing • No ozone, sovent or UV emissions • "Cold Flame" with variable chemistry • Surface morphology unaffected • Surface decontamination	• High speed limitations
CORONA DISCHARGE 	• Electrical ionization of air • Forms low molecular weight material on film surface • High voltage/high frequency creates electron avalanching • Oxygen reacts with the free radicals producing chemical groups	• Chemical groups increase surface energy • Moderate treatment decay rates • Inexpensive treatment process • Does not affect materical bulk properties	• Treatment level decreases over time • Generates ozone • Possible backside treatment if air is trapped under the web • Possible pin-holing at high power levels
FLAME PLASMA 	• Flame ionization of hydrocarbon gas • Forms reactive species, increasing electron density • Surface is polarized	• High treatment levels • Low treatment decay rates • No backside treatment • No pin-holing • No ozone, sovent or UV emissions • No off-taste or film odor • Surface decontamination	• Fixed Chemistry • Low Speed Limitations • Possible reduction in film clarity

originally appeared in E-News Surface Treating Newsletter 2nd Quarter 2003
Enercon Industries Corporation (262) 255-6070 www.enerconind.com