



Electric Motor Testing Tip of the Week

revolutionizing *electrical* reliability

November 5, 2007

Corona: What Is It, and How Does It Affect You?

Long story short, in electrical distribution systems, corona is the breakdown of oxygen between two conductors with very high potentials and large magnetic fields.

When corona occurs, oxygen is recombined into ozone (O_3), which is very reactive and combines with chemicals within the insulation. The additional oxygen in the insulation causes the insulation to disintegrate. It also helps form NO_2 [$3N_2 + 2O_3 \Rightarrow 3NO_2$], which also corrodes the insulation.

Finally, the reaction that causes corona is so violent, that the charged O_3 and O_2 particles slam into the insulation, thus causing mechanical damage - not to mention the temporary appearance of plasma, as well as gamma and X-ray radiation.

Corona just isn't cool.

So, how is corona compensated for, you may be asking? Well, high voltage machines are designed to eliminate corona via the use of formed coils, layered insulation, mica tapes, etc. So as long as the insulation systems for your high voltage machines remains intact, odds are corona may not occur. So, test them whenever you can.

You are invited to submit an Electric Motor Testing Tip of your own and receive a free PdMA mug or hat if we publish it! Contact Lou at 813-621-6463 ext. 126 or lou@pdma.com.