

IR CURING SHOPTALK

Infrared Equipment Division of IHEA

This column is provided to you by members of the Infrared Equipment Division (IRED) of the Industrial Heating Equipment Association (IHEA). The group includes infrared (IR) curing equipment suppliers from throughout North America. We publish the column three times a year to give you the latest information about IR curing techniques and equipment. Contact information is at the end of the column. Most IR manufacturers offer testing for free or for a fee. Any IRED member can assist you in finding solutions to curing problems and best practices for finishing of coatings. This issue's column was submitted by IRED member William E. Pasley, The Southern Co., Atlanta.

Considering a booster IR for your oven? Don't overlook these things



When you visit *Powder Coating* magazine's website at [www.pcoating.com], you can click on Article Index, Subjects, Curing for an array of articles about the use of IR technology for the curing of powder coatings. Whether the IR equipment is placed at the entrance or placed inside convection ovens, you'll find that the use of this technology has become an accepted practice. Gas or electric, medium or short wavelength, improved productivity in your curing line is the bottom line. If you're considering IR heating as a possible productivity solution, then you would do well to review these articles.

Productivity improvement is almost always equated with greater throughput. If you use the metric of reducing energy intensity (energy intensity = energy usage/number of widgets), then the increase in the number of widgets will certainly drive down the energy intensity. However, you obviously can do the same thing if you can reduce the numerator, and it's this point that I want to briefly discuss with you.

Even though I encourage you to read articles as described previously, I'm afraid that our propensity to quickly scan articles may leave us with a few missed points. If our focus is increasing the denominator, then some issues related to the numerator may have been lost. This article has been purposefully made very short

for this reason. If you're considering improvement in productivity, don't overlook a few simple things related to energy in the numerator. Here are a few tidbits from some of the recent articles:

- Review the last revision to NFPA¹ 86, which includes changes to the exhaust requirements for powder curing ovens. Then review your original exhaust calculations to see if you can now reduce them.
- Make sure your oven exhaust calculations for purge time weren't "inflated" to reduce the purge cycle time. If they were, then you're wasting energy every hour you operate. A review of the oven design sheet can show this. A solution to this is longer purge times or a variable frequency drive (VFD) for the exhaust.
- Consider the benefits of more modern burner packages. This would be a good time to look at this. Over-sized burners dictate over-sized exhaust cubic feet per minute (CFM). In addition, modern burners can bring other benefits to you.
- Check to see if you really need the oven to operate at the current temperature set point. You may find that this temperature has "crept up" over time to keep up with production needs. If you are now considering a booster IR, then this would be the time to re-evaluate this set point.
- Consider whether you need any exhaust for volatile organic compound (VOC) removal if you're preheating parts for subsequent coating. VFD controls would allow you to reduce waste heat during this time.

If you've found other operational techniques or "embedded" past decisions that have been energy wasters, then

please share them with everyone. Send a quick note to me, and I will compile these for sharing at a later date: [wepasley@southernco.com].

“...don't overlook a few simple things related to energy in the numerator.”

You may also increase your knowledge about IR curing by attending the following educational sessions:

Efficient Curing with Infrared for the Finishing Industry—Automotive. This seminar will be held March 19 at Alabama Power Co., Calera, AL 35040. It will review the basics of IR, including what it is, how it is produced, and what its characteristics are. It will also review all IR equipment sources and will be followed by a discussion of the wide variety of IR applications used in today's industrial environment. In addition, the seminar will include automotive case histories as well as time in the lab for IR demonstrations. Attendees will receive a copy of IRED's "IR Handbook." For registration information, visit [www.ihea.org] or call, 859/356-1575.

Efficient Curing with Infrared for the Finishing Industry. This educational session will take place Nov. 18-21 at FABTECH 2013, McCormick Place, Chicago. This seminar will also review the basics of IR, including what it is, how it is produced, and what its characteris-

tics are. It will also review all IR equipment sources and will be followed by a discussion of the wide variety of IR applications used in today's industrial environment. Watch for more information at [www.ccaiweb.com] under the FABTECH tab. **PC**

Endnote

1. National Fire Protection Association; visit [www.nfpa.org].

For more information or to submit a question, contact Anne Goyer, executive director of IRED, at 859/356-1575; e-mail anne@goyermt.com. See also www.ihea.org / ired.cfm.

Send comments or questions to Peggy Koop, editor, at 651/287-5603; fax 651/287-5650; e-mail pkoop@cscpub.com. Or go to www.pcoating.com and click on Problem solving. You can submit a question for this column in a few keystrokes. For further reading, articles on this topic and related topics are available for purchase. Click on Article Index and select a category.