Interpon®
POWDER COATINGS

Processing Power

Make positive change in reducing your energy consumption

The more insight you can uncover about the energy consumed across your entire coating line, the more empowered you will be to make positive change. The first step is to benchmark where you currently stand, to seek expert advice, and optimize your processes, from initial pre-treatment, through to curing and drying. Here are some tips and advice from AkzoNobel's Technical Service team for you to consider.

1. Pre-treatment

Energy is consumed at various stages of the pre-treatment process. Even small changes can all add up to making a big difference:

Mechanical pre-treatment

- Compressed air: check for leakages and ensure the blast material management is as efficient as it can be.

Chemical pre-treatment

The substrate you are coating, and the treatment you are using, will all impact the energy you consume:

- Consult with your Pre-treatment supplier about new innovations that could enable you to reduce the energy used in your process.
- If using any stages that require surface treatment above ambient temperature, consider how to ensure these stages are sufficiently insulated to prevent the unnecessary and costly loss of heat.
- When spraying, set the pumps such that they are turned off when the conveyor is empty, and ensure they are regularly cleaned and maintained for optimum performance.

In the drying oven specifically:

- Set the temperature to the minimum required to achieve the appropriate drying time.
- Ensure the oven is regularly maintained and that the air flow and exhaust ventilation systems are at their optimal settings.
- Install heat exchangers if practical (i.e to effectively re-use waste heat from cure oven exhaust).
- Improve oven insulation where needed.

2. The coating booth

The energy consumed within the coating booth can be optimized in various ways:

- Compressed air: as with the pre-treatment phase, monitor the energy you consume and check for leakages.
- Cleaning consumes larger quantities compressed air, and better scheduling can reduce the number of cleaning stages required.
- Create an effective maintenance regime to ensure all of the equipment (including hoses, electrodes, jigs, guns etc) in the coating booth is at its optimum performance.
- Create an effective part loading schedule to ensure your line fill is optimized. Automatic gun triggering can help ensure powder guns only spray when material is directly passing. This will aid overall application efficiency both for powder consumption but also energy usage.

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3. Curing oven

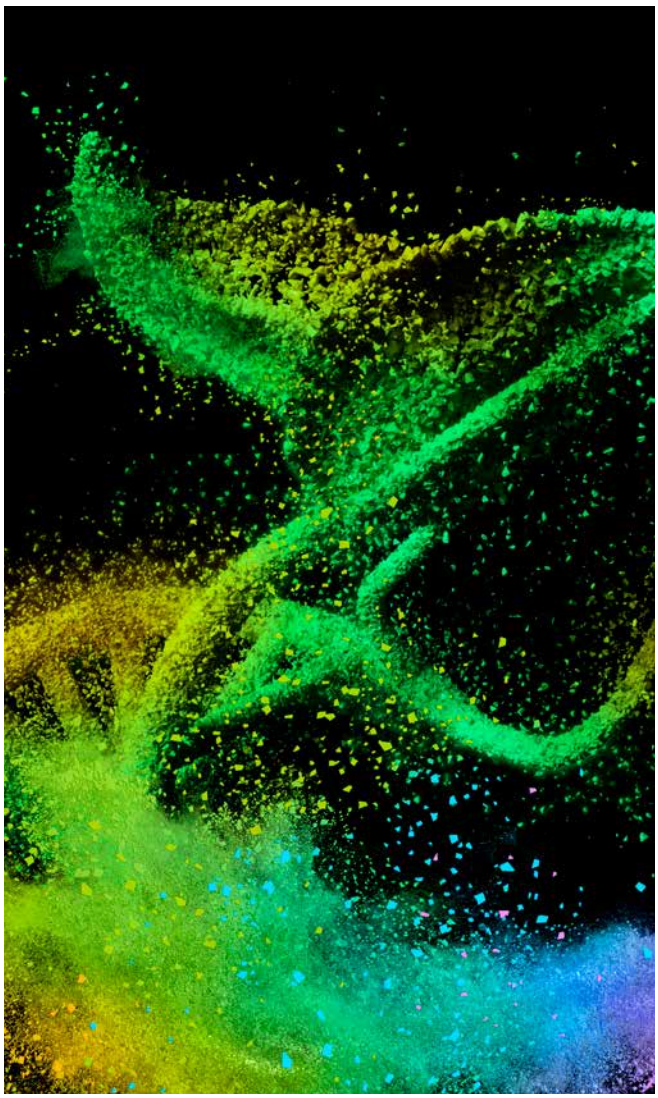
The curing oven presents a particular opportunity to reduce your energy consumption:

- Optimize oven temperature by using the same products/ substrates for a particular run.
- Use the Technical datasheets to evaluate minimum curing temperatures/curing times.
- Adapt the oven temperature to achieve the perfect cure depending on the thickness of the metal (or material) being coated and the line speed.
- Conduct internal quality controls (on the thickest parts of the substrate) to ensure the film is fully cured. Typical tests are solvent resistance, gloss measurement, crosshatch adhesion, and impact and ductility tests.
- Reduce heat loss by having adequate insulation (if the external wall temperature is >35°C) and seals and consider other ways of reducing how heat can escape the oven chamber and/or whether a heat exchange is possible.
- Optimize energy consumption by using different products where possible e.g Interpon's 'low energy' powder coatings that include Interpon 610 Low-E, Interpon ACE Low-E, and Interpon 700 HR. Also, consider switching to single coat/cure systems such as Interpon Redox One Coat.

4. Optimize energy sources

Recognizing the efficiencies you are making means first being able to accurately measure the energy your powder coating process consumes, independent of other processes on your site:

- Install measurement devices to monitor the energy supplied and consumed (gas and electricity) by your powder coating process.
- Consider a hybrid oven option where practical – for example using IR as an alternative curing technology or complementary to a convection oven to provide a pre-heat 'boost'.
- Review your planning/production schedule to coat the lowest cure products together for optimum efficiency.
- Consider general heat exchange solutions to be used where heat losses are found.



At every stage of the process, AkzoNobel's Technical Service team is on hand to guide and advise you on how to make the most out of your processing lines, from optimizing the oven curve through to the balancing of the oven temperature.

Find out more at:
interpon.com/insights/energy-saving

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Disclaimer
The tips provided in this document are intended as a guide and for information purposes only, and suitability may vary according to application and environment. If you'd like to know more about how we can assist you in reducing the energy your business and processes consume, please contact **interpon.info@akzonobel.com**

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