

Radio Frequency Glue Bonding

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Objectives

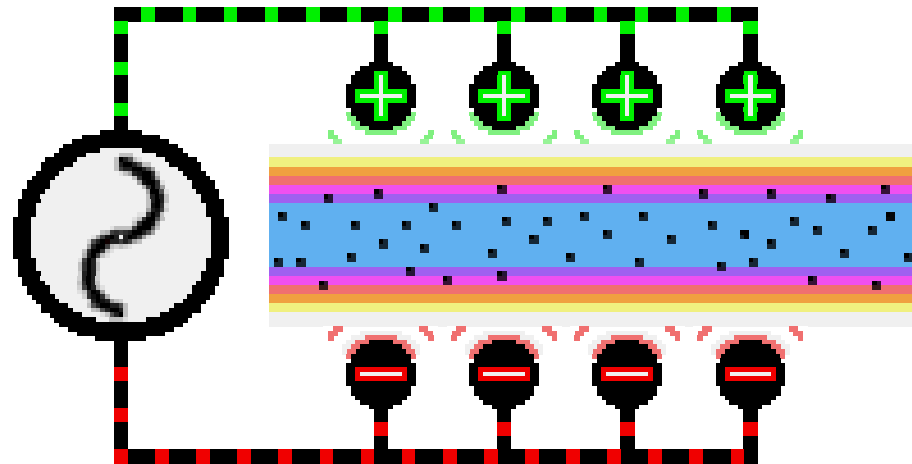
- To achieve a basic understanding of RF glue bonding applications
- How to reduce processing costs by achieving fast curing rates- “cure on demand”
- Discuss the potential technical benefits to your business

Overview

- What is RF Curing?
 - RF Curing vs. conventional curing processes
- Benefits to Industry
 - Advantages/ benefits of RF heating
 - Focus on the Value- added market
- RF applications
 - Edge jointing, edge and bulk laminating

What is RF heating?

- Instant heat is created through molecular friction.
- Typical frequencies used in RF curing are 13.56Mhz & 27.12Mhz.



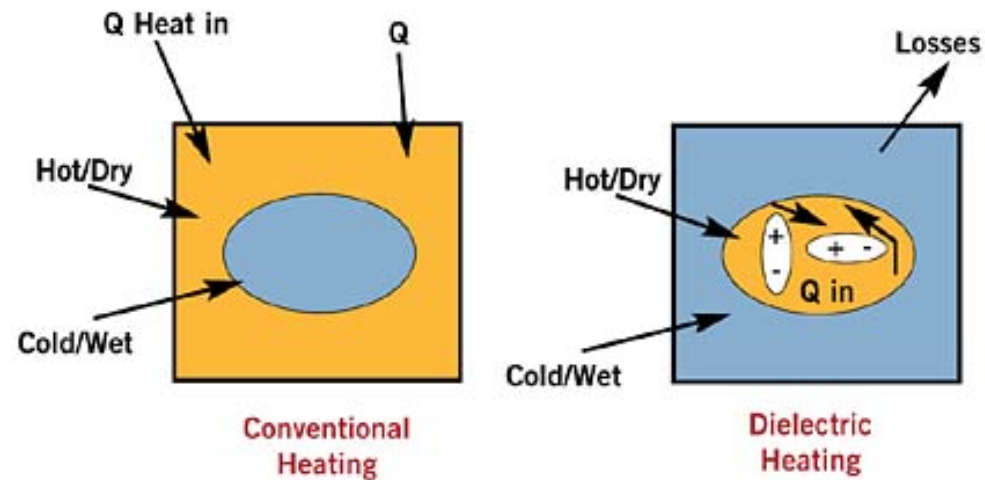
- Increasing the temperature by 10°C enables the curing time to be halved.
- Adhesives are heat reactive allowing them to cure & set faster when exposed to RF energy.

The effect of temperature on curing time of resin:

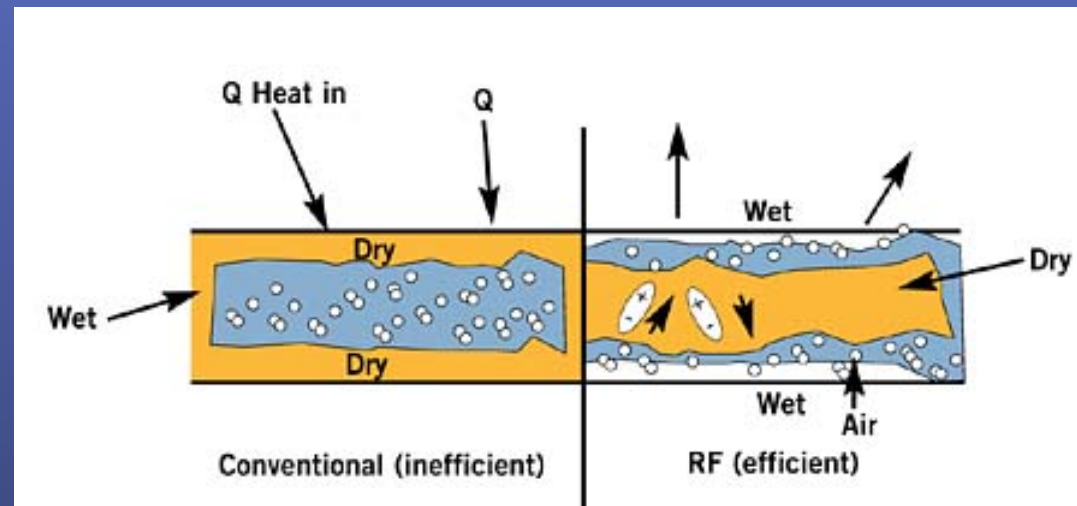
Temp °C	Curing Time
40	3 h
60	25 min
80	5 min
100	1 min

RF vs. Convectional Drying

- Convectional heating: heat applied externally has to “soak” into the material by thermal conduction
- RF Heats volumetrically at the molecular level, selectively heating the wetter areas within the product.



- A conventionally dried product is hot & dry on the outside and cold and wet on the inside.
- With RF drying, moisture is driven to the surface.



Summary

- enhance process heating, drying & curing
- “Cure on demand”
- reduce unit costs & improve quality
- computerized automation

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- local technical support & knowledge