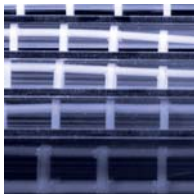


# Business

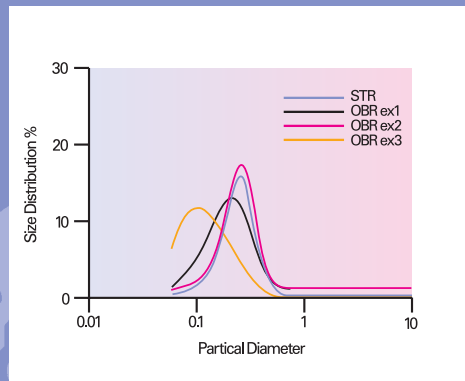
## BENEFITS

Creating competitive advantages through lower cost production

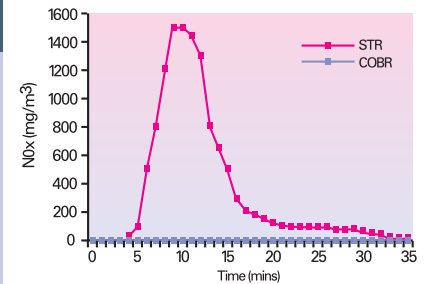


There are a number of ways in which adopting a COBR™ production process can create competitive advantages, these can be achieved through:

- **Reduced Costs**
- **Leaner Supply Chain**
- **Greater Customer Responsiveness**
- **Innovation and New Product Development**
- **Environmental Impact**



**Diagram 1** This graph indicates that a variety of size distributions can be achieved



**Diagram 2** Typical NOx emissions in the production of the photochemical for both STR and COBR™

### Reduced Costs

- Lower capital costs than traditional processes
- Higher material yields
- Less loss through clean-down and changeover
- Greater control over reactions; reductions in by-products and out-of-spec products so savings in waste management and disposal costs
- Grater plant uptime
- Reduced plant footprint equals lower overheads and utility costs
- The plant takes up considerably less space than traditional plant equipment; up to 90% less

### Leaner Supply Chain

- Faster reaction times enable shorter throughput times
- Variable production quantities rather than multiples of batch size
- More products can be made more often; allowing lower stock holding

- Higher yields of products are achievable
- Flexibility of the plant, it can run for 8hrs on product X, 6hrs on product Y and 3hrs on product Z.

### Greater Customer Responsiveness

- Cost effective production of small batches
- Mass customisation; products can be cost effectively made to customers specific requirements
- Changing schedules or changing product runs at short notice can be achieved with relative ease
- Higher responsiveness to customers requests adds value and creates competitive barriers

### Innovation and New Product Development

- Higher value is added by creating unique, more customer specific products; therefore higher margins can be achieved
- New products that have been hard to achieve through existing production methods are now commercially viable

- An example of this is shown in Diagram 1. Traditional methods only produce one size distribution of latex particles; the graph clearly shows that using a COBR™, a family of size distribution can be tailor-made. This gives the chemists greater choice in products that can be achieved, enabling greater functionality and increased product performance
- Precise control over the variables within a reaction enables greater control over the final product

### Environmental Impact

- Reductions in emissions from a COBR™ are hundreds of times lower than from traditional STR (this is shown in Diagram 2)
- Reductions in waste products due to the greater control over the reactions create less out-of-spec by-products
- Reductions in energy demands due to faster reaction times and more efficient small scale continuous operation