

# PROPERTIES OF SPRAYED COATINGS EFFICIENCY AND COVERAGE

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Efficiency is used as a test to assist in establishing the optimum economic and technical deposition parameters. In general, conditions giving high deposition efficiencies are close to those for optimum fuel utilisation, they are also close to those for maximum integrity.

### Factors Affecting Efficiency

Efficiency will be affected by:

- i) The shape and size of the component
- ii) The basis material and its preparation
- iii) The spraying parameters

Measured efficiency will be reduced when spraying onto small components which are not completely within the spray stream. Even with large components, overspray at edges will reduce efficiencies. Spraying at angles other than normal to the surface will reduce efficiency.

Normally, efficiencies will be higher when spraying onto similar materials and onto properly gritblasted surfaces.

Deviation from the recommended spraying parameters will reduce efficiencies. This will be particularly noticeable if atomising pressures and spraying rates are increased, when the deposit volatilises easily or forms a volatile oxide.

**IT IS IMPORTANT THAT DEPOSITION RATE AND FEED RATE ARE NOT CONFUSED.** By increasing the fuel consumption, it is possible to spray slightly faster with most materials. In combustion gas spraying particularly, the resultant reduction in an efficiency together with increased fuel consumption renders the practice extremely uneconomic.

## **Measurement of Efficiency**

A known weight of material is sprayed under closely controlled conditions on to a suitably prepared flat plate, round bar or tube. The efficiency is calculated as the weight gain of the sample per 100gm of material sprayed.

Please refer to EN ISO 17836:2004 Determination of the deposition efficiency for thermal spraying.

## **Significance of Efficiency**

Because large areas are rare and because spraying is continued beyond the area being coated, perceived efficiencies may be lower than those quoted. Also deposition efficiencies will vary between companies and between operators; better trained and more highly skilled operators will usually achieve greater efficiencies and hence waste less material.