



# salt association

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## A Layman's guide to winter maintenance

**Roads are our Nations arteries linking our economy and our society. Snow and ice endanger road users and paralyse economic activity. Sensible Salting keeps roads open and safe.**

### Salt or Grit?

The words 'grit' or 'gritting' are sometimes used as synonymous with 'salt' or 'salting'. In practice, it is salt which is almost always used. The use of stones or chippings is not recommended for use in de-icing roads as this leads to an increase in windscreen damage claims. In the UK, de-icing salt is often brownish in colour as it contains small amounts of (clay-like) marl.

### Who is responsible for winter road maintenance?

The Railways and Transport Safety Act 2003 made it clear that local authorities have a legal responsibility to ensure, so far as is reasonably practicable, that safe passage along a highway is not endangered by snow and ice.



Salt spreader or "gritter"

### How does salt work?

It lowers the freezing point of water. The level of depression is dependant upon the amount of salt used.

### Eutectic point:

The eutectic point is the temperature below which salt will not melt ice (-21°C). In practice, the effective working temperature is down to -10°.

### Spread rates

The amount of salt required will vary, dependent upon a variety of factors. These include the spreading method (rock salt, pre-wetted rock salt or treated rock salt), the weather event (frost or snow event) and the efficiency of the spreading fleet.

### Particle size:

BS 3247:2011 includes both 0-10mm and 0-6mm sizes.



### Benefits of de-icing

Research has shown that for every £1 expended on winter road maintenance, about £8 is saved in the economy as a whole (Thornes). And this takes no account of the potential for human tragedy. The cost of an accident or fatality on the roads is huge when items such as health care and legal costs are included.

### Anti-caking agent:

This is added to road salt to prevent it from re-coagulating. In the UK, E535 (sodium hexacyanoferrate II) is generally used at levels up to 50 ppm.



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## **Pre-wetted salt:**

Salt which is wetted prior to spreading, usually using sodium chloride or calcium chloride brine solution. This improves adherence to the road, and may encourage rapid thawing action, especially in dry air conditions

## **Additives:**

De-icing salt can be used without further additives. However, some authorities now use salt with agricultural by-products (ABPs). These are organic or inorganic materials added to de-icing salt to reduce corrosion and/or improve the spreading characteristics or surface adhesion of the salt.

## **Stock levels:**

The Independent Winter Resilience Review Final Report (2010) recommended that authorities should hold pre-season stocks sufficient for 12 days/48 de-icing runs.

## **Salt storage:**

Salt can be stored in the open, but ideally should be roofed or covered in tarpaulin. It should be situated on an impervious base and sited well away from watercourses or soakaways.

## **Volumes:**

Depending on the severity of the winter, the volume of salt used varies between about  $\frac{3}{4}$  million and 2 million tonnes. Under normal circumstances this can be met from the three UK mines situated at Cleveland, Carrickfergus and Winsford although, under extreme conditions, some additional imports may be required. There are sufficient reserves of salt under the UK to meet demand for several centuries.

## **Environmental issues:**

De-icing salt has a low environmental impact when used responsibly. By following codes of good practice, winter maintenance professionals ensure salt is used sensibly and selectively. Effective planning can also help by designing roads in such a way that salt does not run off into water courses.



Effects of salt on vegetation are varied, largely dependent on species. Some plants are highly salt tolerant and others can be badly affected. Salt sensitive plants should not be positioned where they could come into contact with de-icing salt.

Chlorides can contribute to metal corrosion. Modern vehicle design and consideration of the de-icing activity in designing and building road structures have both helped to reduce the impact of corrosion. Vehicles and metal structures exposed to salt should be cleaned down regularly to avoid accumulation of salt.

**The general objective should be: As much as necessary, as little as possible.**

Further information is available on the Salt Association web site: [www.saltsense.co.uk](http://www.saltsense.co.uk)

Reference: G2557d Fact Sheet (De-icing) – Summer 2011