**TAMESIDE MBC – SALT EXPLAINED**

**Why is salt used on roads and pedestrian areas?**

Treatment of roads and pedestrian areas with salt is carried out to prevent frost and ice forming and reduce the build up of snow to help provide a safe passage on the highest priority roads and pedestrian areas. During prolonged snow fall there will be a build up but the passage of traffic can aid the breakdown of the snow covering on our priority roads. On residential roads it is common for the snow to take a considerably longer time to break down and melt.

**How does salt prevent frost and ice forming?**

Frost and ice form when water freezes. Salt spread on roads and pedestrian areas mixes with any moisture and creates a saline solution. Saline solutions freeze at a lower temperature than water, so frost and ice doesn't form on the road, even though the temperature is below freezing for water. It's for exactly the same reason why salty sea water freezes at a lower temperature than fresh water. The actual freezing point of a saline solution depends on the salinity (strength) of the saline solution.

The applicable amount of salt is spread on the roads to ensure, as far as possible, that the salinity of any moisture on the roads is sufficient enough to prevent the formation of frost and ice.

At temperatures below minus 6 degrees the effectiveness of the salt is reduced.

**Will salt melt snow?**

No. Salt doesn't directly melt snow as it firstly has to mix with the snow to form a saline solution and lower the melting point. If snow is predicted, salt is spread in advance so when the first snow falls it can start to mix with salt to create a saline solution which can reduce the build up (accumulation) of snow and prevent the formation of ice.

However in prolonged periods of snowfall the snow can fall at a rate faster than the salt can mix with the snow which means the snow may accumulate. Accumulated snow will have to be ploughed away from the roads or cleared in the pedestrian areas, but this is made much easier by salt spread in advance of the snowfall as the salt already applied reduces the likelihood of the snow freezing on the surface.

Placing salt on top of snow which has already fallen has limited benefits.

**When is the best time to spread salt?**

This depends on a variety of factors. When we know with certainly from the weather forecast the roads will require gritting treatment, where possible we carry out the gritting treatment in the evening at approximately 6.00pm and / or in the morning prior to commuting traffic building up on our roads. Gritting at this time ensures the best performance of the grit. Spreading salt at these times also means the roads are treated in advance of peak traffic flows, before the times where frost and ice will form, and when there will be enough traffic on the roads to help the salt mix with the moisture to form a saline solution.

Where the weather forecast cannot confirm with certainty that a treatment will be needed, we will continuously monitor the weather data and order a grit treatment only if it is needed. If the time of salt spreading coincides with the rush hours, the gritters can be severely delayed and get stuck in traffic, so we always try to avoid gritting during rush hours wherever possible.

Difficulties can arise when rain is forecast to continue right up to the time of freezing or when the rain is forecast to turn to snow. In these circumstances the gritters must wait until the rain has stopped or the salt will be washed away.

**What is rock salt?**

The salt we use on the roads and pedestrian areas is rock salt. Rock salt is more than 90% pure Sodium Chloride (salt) with the remaining insolubles consisting mainly of Keuper Marl which helps to protect the salt quality. Marl also helps improve friction when salt is used as a highway de-icer.

**How long can rock salt be stored for?**

If rock salt is kept dry it can last for a long time. It is also more effective if it is kept dry before it is spread. If it's exposed to water it will dissolve and will be washed away, meaning the salt concentration is less when it is spread so it is less effective. Rock salt will also bind together when it gets wet so has to be broken up before it can be used. However, there are often clumps left, which means the rock salt won't spread as evenly and will be less effective as a result.We cover our salt stocks to ensure it is well preserved and in the best condition for gritting. This is why we always ask for all salt bin lids to be kept closed to prevent the salt quality from deteriorating.

**Where does the Council get its rock salt from?**

Our salt supplier is Compass Minerals Ltd. - they extract, crush and screen rock salt from its dedicated Winsford mine. They mine all year round, which allows us to build our stock levels through the summer and autumn. We store around 4000 tonnes which ensures sufficient stock to provide the service through an average winter. Our stock levels are maintained in accordance with National resilience requirements.

Facts about salt and treatments

* Road surface temperature and whether the road is wet or dry determines what grit treatment is needed - not the air temperature. Even on cold days the roads may have retained enough heat for treatments not to be necessary
* Over 4000 tonne of salt is spread on our roads each year. The majority is spread onto our priority road network which can account for upwards of 42% of the overall road network.