

## **Norwegian Organisation against Road Salting (NORS)**

### **Campaign origins**

A number of years have passed since people first started reacting to the negative effects of road salting. The first signs were damaged shoes and clothes, and an increase in hazardous situations caused by animals that seemed to be attracted by the taste of salt on the roads. Motorists found it hard to remove salt spray adhering to windscreens and paintwork, as well as increased rust and corrosion damage from roads applied with salt.

Eventually, small, local action groups began to form which started campaigning against unnecessary road salting. In 1996, environmental problems related to road salting were discovered and despite the efforts of the action groups to focus attention on these problems, no reaction was obtained from the responsible public authorities.

Today we have a great deal of knowledge about the negative consequences of road salting, and the local action groups are now organised into a nationwide campaign called the Norwegian Organisation against Road Salting (NORS).

During the winter of 2004/2005, over 140 000 tonnes of salt were spread on Norwegian roads, corresponding to 45 tonnes of salt per kilometre of salted road.

In order to prevent the salt from clumping, the Norwegian Public Roads Administration added, in total, 14 000 kg of the highly toxic anticoagulant “Ferro cyanide”. This poison is rapidly taken up into the bodies of both people and animals. According to our calculations, they have used 5 times the legally permissible amount of Ferro cyanide per kg of salt – in other words 100 milligrams of Ferro cyanide compared to the legal limit of 20 milligrams.

As a result of road salting, several hundred thousand litres of de-icer (iso-propanol) are also used in windscreen washer-fluid every winter. Iso-propanol is poisonous and causes drowsiness. In addition, thousands of litres of cleaning chemicals (both biodegradable and non-biodegradable) end up in the environment!

### **What is the objective of NORS?**

The goal of the Norwegian Organisation against Road Salting is obvious from its name, and the organisation will have served its purpose the day that goal is achieved. There is no doubt that NORS will carry on its campaign through to its achieving this goal.

We aim to enter into a dialogue with the relevant authorities and reach our objectives in a civilised manner. However, the fact that environmental organisations and 70 % of motorists are against road salting means that there can be no doubt that a great weight of support backs our cause. If dialogue fails we will continue to pursue our objective in the form of an action campaign.

### **How did this “Bare asphalt” strategy, as road salting can be called, actually arise?**

The Norwegian Public Roads Administration produced a plan for the Norwegian parliament and asked for approval to implement road salting on the basis that it would solve a range of problems and increase road safety. The parliament trusted the recommendations of its national roads authority and approved the plan. It’s obvious that parliament was unaware what the consequences of its actions would be; and the Roads Administration clearly didn’t have a clue what the extent of the ensuing problem would look like!

Now that the scale of the damage is known, it is doubtful that parliament would have approved a similar plan today. Many other countries which used road salt began to cut down on its use long ago because they were clear about its negative effects on animals, people, materials and not least, the environment. Norway, on the other hand, has radically increased its use of road salt despite the fact that its damaging effects are well known. We therefore demand that the Norwegian parliament withdraws its approval for the use of road salt as quickly as possible. Our reasons for raising this demand are as follows:

### **What happened to road safety?**

The Roads Administration refers to a report by the SINTEF research institute claiming that road safety increases with road salting. The report is extremely one-sided and has been criticised by other experts, but the Roads Administration uses it for all it is worth!

We say that this report has been “made to order” for the Roads Administration, and we have evidence to show the effect of salting on road safety is considerably exaggerated. A one-sided report is not enough to justify support. Other factors indicate that road safety may be reduced. In Hallingdal the number of accidents has increased with road salting as compared to other sites in Valdres and Gudbrandsdalen. Why has the number of fatal accidents in Buskerud County doubled between 2003 and 2005 with winter months being the worst? In the rest of Norway the number of fatal accidents has fallen. Buskerud is one of the counties where road salt is used most and should have very low accident statistics, if SINTEF’s calculations are to be believed.

The Swedish Roads Administration is reducing its use of road salt and a study of their accident figures shows a strong downward trend between the years 2000 and 2005. This is the complete opposite of the Norwegian policy “mantra” of more salt, fewer accidents.

Articulated lorries skid off roads on a daily basis, even though these roads are salted, and there have been a number of horrific accidents where the use of road salt appears to have been a direct cause. If roads are not ploughed clean then vehicles will skid in the resulting slush and accidents are unavoidable.

We are looking forward to the Roads Administration publishing an analysis that confirms their claims!

### **Environmental damage!**

Road salting’s damage to the environment alone ought to be a good enough reason to stop the “Bare asphalt” policy. Road salt also takes many other dangerous substances with it as it seeps down into the soil and groundwater. Years of salting have led to pollution of water sources and groundwater. Even if road salting ceases tomorrow, the pollution will continue for years.

The high concentrations of salt encountered in many Norwegian groundwater sources will have negative consequences for human health. The EU Water Framework Directive will impose severe restrictions on the use of chemicals for winter maintenance of roads, and will require the cleaning up of pollution caused by road salting. The directive will also be applicable in Norway through the EFTA agreement.

Some years ago, the Norwegian Pollution Control Authority asked the Roads Administration to present an analysis of the problem. The Norwegian Institute for Water Research and the Norwegian Institute for Agricultural and Environmental Research (Bioforsk) have now started a new survey, but in our opinion the scale of the damage is already known and described in a Bioforsk report from 2004. Many people have had their drinking water sources damaged. Since the first case became known in 1996 there has been no response from those responsible, and now many have reported their polluted drinking water sources to the Roads Administration. In 1996 the Roads Administration had to pay compensation of 140 000

kroner to a property owner for damaging a drinking water source. What will the total costs be for all the damage caused by road salting before it is finally stopped?

What happens from the point where pollution starts to the point where it is discovered? People and animals may have their health damaged and compensation claims could be enormous.

Does the Norwegian parliament have time to wait for more reports? According to an answer we received from Environment Minister, Helen Bjørnøy, she wants to wait for the report from the Norwegian Pollution Control Authority. Our advice is that she should contact the Roads Administration without further ado since it has already received plenty of compensation claims and threats of legal action. The Roads Administration is now sitting on so many claims that this ought to be enough for it to end road salting for good. We don't need to wait for more reports, what we need is action from the parliament. Stop road salting before the damage becomes too great and difficult to deal with!

### **Accidents caused by material damage!**

We estimate that the Roads Administration saves around 2 billion kroner each year through road salting which saves them the job of clearing snow with conventional equipment.

Unfortunately this seems to be a very short sighted policy when the costs associated with the consequences of road salting are taken into consideration! Norway's motorists also have to pick up the additional costs arising from rust and corrosion damage which are estimated to be more than 5 billion kroner each year. Much of the rust damage occurs in components which are important for road safety such as brakes. Recently, many motorists have experienced sudden and unexpected brake failure due to oil released from asphalt and salt coating the brake linings. Garages have confirmed the cause of these failures. This is a growing problem. What can the Roads Administration tell us about the role of road salting in these accidents?

### **Damage to underground installations and bridges!**

The Roads Administration now mixes magnesium chloride into salt to lower the freezing point on the road surface. Magnesium chloride is corrosive to concrete and one can imagine the damage this causes: Damage to concrete bridges and steel reinforcement which bears the load of the concrete – we have already received reports of “sick” concrete bridges. What is the reason? Another point to consider is all the underground installations like tunnels, water and sewerage pipes. It's worrying to think that damage will not be discovered until it has gone too far. As is the case with pollution of groundwater, we won't see the damage until it is too late!

### **Driving on salted roads – in practice!**

Driving conditions are fine when roads are properly cleared of snow after salting, and the road surface is dry. If the road is not dry this will lead to increased use of windscreen washers and washer fluid which is a source of pollution. If the road is poorly cleared, the fact that wheels do not touch the actual road surface will lead to problems and aquaplaning. Speeds will need to be drastically reduced. However, when the road surface is dry, road dust will occur. The Roads Administration then continues with salting to keep the asphalt wet. Wet asphalt wears out 4-5 times faster than dry asphalt.

Normally, conditions become slippery around zero degrees centigrade. On salted roads freezing does not occur until temperatures fall to considerably below zero. The fact that conditions become slippery at an unusual temperature may surprise many motorists. Another problem that occurs is spray from oncoming traffic freezing on the windscreen, thus reducing visibility. Where magnesium chloride is mixed with salt the freezing point is reduced even further, worsening the problems.

When road salt freezes it creates “sea ice” which is harder than ice from plain water. Tyre-chains will also have reduced effect under conditions where a thin ice-layer covers the

asphalt. When driving from a salted road over to a non-salted road, driving conditions can be particularly hazardous. This change over point has a high accident potential and catches many unawares!

### **What does NORS want after stopping road salting?**

We want predictable winter roads which are ploughed, scraped and sanded according to need. An alternative to normal sand and fine gravel is shell-sand. "Crust" is a new, 100 % environmentally friendly sanding agent which is currently being tested at airports and on roads. It clings to ice creating "sandpaper" driving conditions. 0.5 kg of Crust corresponds to 1000 kg of sand.

We also want motorists to choose the type of tyres they feel safest with. Bioforsk describes in a report from 2004 how road salt loosens bitumen in the asphalt. Stones in the asphalt are also loosened to a greater extent than is the case by modern studded-tyres. Traffic using a mixture of studded tyres, tyre chains and stud-free tyres makes for optimal driving conditions. There are also other good alternatives such as tyres with added sand grains, silicone or other additives that provide good friction. Those who can't manage to drive under normal winter conditions can choose alternative means of transport. It is not a human right to be able to drive on bare asphalt in a winter country!

Heavier vehicles can be fitted with sanding equipment which the driver operates according to need. This applies sand directly in front of the wheels. We are certain that inventors and manufacturers will find new solutions once road salting is gone.

Norwegian Organisation against Road Salting.

Leader's signature on behalf of the organisation.

Leader Kåre Denholm.

Secretary Arvid Furnes.