

Manage spreader distribution in according to the de-icing agent moisture content

The control of the longitudinal and transverse distribution is essential. It allows the administrator of the road to guarantee that the de-icing agent programmed quantity is really spread on the road.

European standards exist about the distribution of the fondant: they supply test protocols and define the requirements that the equipments have to perform so that their distribution is considered as acceptable. The Experimental Station of Road Equipments of Blois (SEMR) possesses a testing platform dedicated to salt and de-icing agents spreaders. It includes, among other things, of a device of longitudinal dosage (ODEMIE) and of a bench of transverse distribution (EPIR).

The regulation of the equipments is made with a de-icing agent with properties which can evolve throughout the winter service : it is thus necessary not to adjust for absolutely nothing the equipments to adapt their functioning to the properties of de-icing agents, in particular the most important for a given road de-icing agent : the moisture content. Other parameters intervene connected to the fondant (size grading, cohesion) or in the equipment (disk of spreading, transport of the fondant between the hopper and the disk, the width of spreading).

Tests allowed, for a given de-icing agent, to determine the influence of the moisture content on the transverse and longitudinal distributions according to various parameters technological (width of spreading and asymmetry of spreading).

These data, in the form of abacuses, can be used by the road services to program better their spreading. They can be connected with technologies of measure of moisture content and allow via servo loops to command a dosage closer to the reality and so to spread the just quantity. The SEMR, in this optics, tested probes of moisture content of the de-icing agents which, at present, can be used during the load by conveyor belt of the de-icing agent in hopper and allow to have knowledge of the moisture content of the de-icing agent in this one.

Two elements are the object of additional researches. It is a question of:

- the measure of the moisture content of the de-icing agents in the hopper which would be simpler to the measure on the conveyor belt during the de-icing agent loading;
- the servo loop between the moisture content and the spreader control unit.