Technical Comittee 3.2.1.

Integration of new technologies in winter service

Julius JANEBA

Czech Republic

New and old spreading technique

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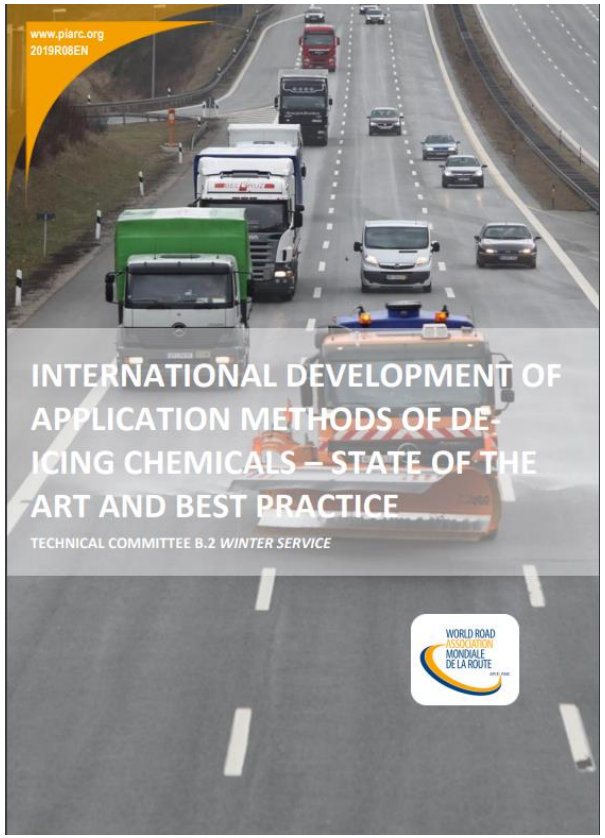
Key role of spreading technique

- Snow removal
- De-icing materials spreading
- Sand or other abbrasives spreading

Application methods – Technical report

- International development of application methods of de-icing chemicals – state of the art and best practice (2019)



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Spreading vehicles in the Czech Republic

- Winter service agencies focus on effective, reliable and low-cost cars with exchangable superstructures.
- Accessible maintenance and repair service required. Frequence of self-repairs decreases.
- Drivers' comfort has been improved.
- New technologies introduced.
- Euro 6 emission norm, AdBlue necessary.

The fleets of spreaders have been significantly modernized within recent 10 years.

IVECO Mercedes-Benz TATRA SCANIA VOLVO DAF MAN

Key issue = climatic change

The **European Green Deal** is a set of policy initiatives given the European Commission that aim to climate neutrality of EU in 2050.

- Current goal is to **reduce emissions by 55% by 2030** compared to 1991.
- A new emission standard called **Euro 7** is under development and is expected to be **implemented from 2025.**
  - End of conventional ICE (internal combustion engines)?
  - Supplement not clear in the trucks segment (CNG, electric, hydrogen-electric…)

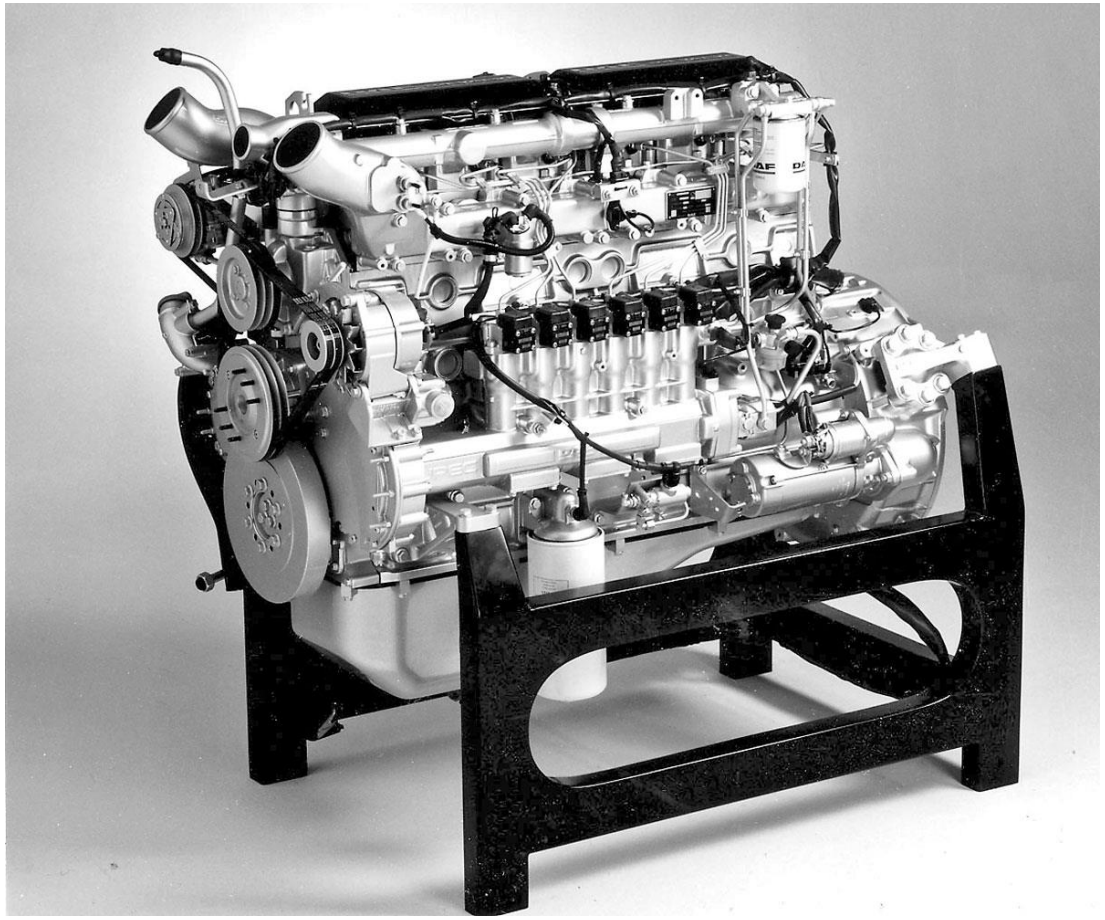
Key issue = climatic change

Euro 7 requirements

Nitrogen oxides (NOx)

- 80 mg/km (Euro 6) ➡ 30 mg/km (Euro 7)
- Producers often say it is unable to produce such engines…
- Possible solution „Super Clean Electrified Diesel“?
  - SCR catalyst to control exhaust
  - Mild-hybrid 48V electrical system
  - connected Energy Management (intelligent recuperation)

➡ up to 60% NOx reduction



Spreaders developent

- **Combined** chemical **spreaders with enlarged brine tanks** – used for pre-wetted spreading or only brine application.
  - Czech Motorways network
  - First regional road administrators
  - better for 3-axle vehicles

Spreaders develompent

- Combined chemical spreaders with enlarged brine tanks – EPOKE SH4902 SIRIUS COMBI AST III
- 30 cars in the Czech Rep. now

Spreaders developent

- Combined chemical spreaders with enlarged brine tanks – EPOKE SH4902 SIRIUS COMBI AST III
- Improved system of brine distribution

  Spray width: 3 -11 m
  - central section 3 m – 3 Spratronic nozzles
  - 8 side Spratronic Jet nozzles with a controllable step 1 m

  Work speed: 10 – 90 km/h

  Brine dosage: 10 – 40 ml/m2

  Size: salt tray 5m^3, brine tank 130 litres

  New controller EpoMaster X1

Spreaders developpent

- Focus on flexibility – all year use
- Different models of exchangable bodies
- Different size

Use of older technique

- Historic relationships of the Czech Republic and western Ukraine regions.
- Czech road agencies give up their older vehicles to Ukraine within the framework of regional cooperation.
- The technique is fully functional and ready-to-use in winter service and other operations.
- Spare parts included in the transfer.

Use of older technique

- Kraj Vysočina (central region in the Czech Rep.) delivers 6 cars to towns Khust, Uzhgorod and others – 2018

Use of older technique

- Drivers training

Use of older technique

- New deployment places

Use of older technique

- South Bohemia’s spreaders to Kolocava

- The gift from the South Bohemian Region was gratefully acknowledged by the Mayor of Koločava, Vasyl Ivanovych Chudyněc.

„We thank our friends from the south of Bohemia for helping us get something we don't have in our village yet. And we are already looking forward to using our cars,“ said Chudyněc.

Thank you for your attention

julius.janeba@strabag.com