
**TECHNOLOGY OF CLEANING AND MAINTENANCE OF AUTOMOBILE
ROADS IN THE WINTER SEASON**

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In this article, technologies for cleaning highways in the winter season: snow removal; removal of snow and ice formation; eliminate ice and slippage. The difficulties of winter cleaning are primarily due to changes in snow properties due to climatic conditions, that is, its properties are studied under the influence of vehicles and pedestrian traffic.

INTRODUCTION. Cleaning roads in winter is a necessity to ensure the safety of normal movement of pedestrians and vehicles. Winter clearing is often complicated by the unpredictable rate and duration of snowmelt and ice. The most important condition for the high-quality performance of the work is its timely completion, because otherwise the snow falling under the influence of car wheels will be crushed, tire tracks and compacted snow-ice piles will form in the snow on the roadway, which will significantly worsen traffic conditions. makes it worse.

In order to prevent traffic jams, it is necessary to implement measures to ensure traffic safety during the winter cleaning process. The priority of winter cleaning is the speedy implementation of these measures, the time and extent of which directly depend on the climate and weather conditions. [11]

Cleaning technology includes: snow removal; removal of snow and ice formation; eliminate ice and slippage. The difficulties of winter cleaning are primarily due to changes in snow properties due to climatic conditions, i.e. changes in its properties under the influence of vehicles and pedestrian traffic. In this regard, snow removal works are carried out as soon as possible, because the snow on the road from car wheels and pedestrian traffic is quickly crushed and turns into snow-ice or ice under the influence of temperature changes.

Condensed snow, together with formed ice, has a strength of 17-33 times more than the strength of snow in a loose state. Therefore, the burnt snow must be completely cleared before compaction. [12]

Snow removal technology is considered the most effective and reasonable in conditions of high speed of movement of vehicles at low temperatures through the complex use of mechanization tools and technological materials. At the same time, the presence of reagents and technological materials in the snow area preserves its spreadable soft state and prevents compaction, as a result of which it can be easily scraped off the road with the help of a plunger-shutter snow blower.

In the application of chemical reagents and technological materials, the appropriate technological efficiency, i.e., good mixing with snow, is achieved when the traffic speed exceeds at least 120 vehicles per hour.

Snow removal, with the help of chemical reagents and technological materials, consists of several cycles during the entire period of snowfall and immediately after its end, which include variable operations in a certain order: impact making, processing the surface of the road with technological materials, spacing, scraping and sweeping the snow.

In order to prevent crushing of snow and rolling of car wheels, the time of processing the road section with reagents and technological materials should be minimal. In addition, the treatment with technological materials reduces the activity of icing and reduces the slippage between the tire and the asphalt concrete in the fight against ice and slush.

Technological materials (reagent, sand-salt) can be sprinkled continuously or intermittently. In the field, only hazardous areas (icy surfaces, ice-formed lanes, intersections, turns, bridges, places of heavy braking at public transport stations, pedestrian crossings, etc.) are processed.

The effective effect of technological materials is achieved by minimizing the duration of this operation and strictly following the technological recommendations related to this operation.

Snow scraping and sweeping, usually snow plows are driven along the sidewalk on the right side of the road in the general flow of vehicles, and the snow is thrown. During snowfall, a layer of snow is formed in the separating zone after clearing the road from snow, which is removed.

If the snow compacted on the wheels is not removed in time, it will quickly turn into snow-ice pack or ice under the influence of temperature changes.

Due to the formation of ice on the surface of the road surface, it cannot be completely removed by machines. In order to reduce hard icing, it is recommended to have a complex effect on the boundary layer on the surface of the icing and the road surface, and then use mechanization tools.

Removal of formed snow and ice. Three methods of snow-ice removal are used: removable, non-removable, combined.

The removal method is the most common method of removing snow and ice, which consists of mechanized loading onto vehicles with snow loaders and rotor snow plows. [12]

The non-removal method consists in pushing snow and ice piles to open areas, riverbeds, and also forming snow piles on secondary streets to store snow in the winter season. The least expensive non-removable method is done with rotor snow plows.

Elimination of snow, ice and slippery conditions. Ensuring the quality of operational characteristics of road surfaces is the most important thing to do in a disaster situation. If there is a reasonably reliable prediction of the time of occurrence of slippage, it is prevented according to the active prevention method of ice and slippage.

If snow and ice are formed as a result of low-quality snow removal, if the ice is not removed, the slipperiness on the road surface is passively eliminated.

The use of the active method, which is carried out by sprinkling pure reagents, eliminates the presence of ice, while the passive method, by treating the road surface with a mixture of sand-salt or sand-reagent, only a temporary result is achieved. [12]

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