

Contamination of environment in the road surroundings – impact of road salting on Norway spruce (*Picea abies*) and Scots pine (*Pinus sylvestris*)

Jitka Hegrová¹, Oliver Steiner², Walter Goessler², Stefan Tanda² and Petr Anděl³

¹Transport Research Centre, Líšeňská 33a, 636 00 Brno, Czech Republic

²University of Graz, Institute of Chemistry, Analytical Chemistry for Health and Environment, Universitätsplatz 1, 8010 Graz, Austria

³Faculty of Environmental Sciences, Czech University of Life, Sciences Prague, Kamýcká 129, Praha 6 – Suchbátka, 165 21, Czech Republic

E-mail: jitka.hegrova@cdv.cz

Abstract. A comprehensive overview of the influence of transport on the environment is presented in this study. The complex analysis of soil and needle samples provides an extensive set of data, which presents elemental contamination of the environment near roads. Traffic pollution (including winter road treatment) has a significant negative influence on our environment. Besides sodium and chlorine from winter maintenance many other elements are emitted into the environment. Three possible sources of contamination are assumed for environmental contamination evaluation: car emission, winter maintenance and abrasion from breaks and clutches. The chemical analysis focused on the description of samples from inorganic point of view. The influence of the contamination potential on the sodium and chlorine content in the samples of 1st year-old and 2nd year-old needles of Norway spruce (*Picea abies*) and Scots pine (*Pinus sylvestris*) is discussed. Additional soil samples were taken from each sampling site and analyzed to get insight in the sodium and chlorine distribution. Statistical evaluation was used for interpretation of complex interaction patterns between element concentrations in different aged needles based on localities character including distance from the road and element concentration in soils. This species of needles were chosen because of its heightened sensitivity towards salinization. The study was conducted in different parts of the Czech Republic. The resulting database is a source of valuable information about the influence of transport on the environment.