

Brine releases from process industries and desalination plants: the case of The Netherlands

D. XEVENOS¹, M. MORTOU¹, D. BAKOGIANNI², E. SKOURTANIOTI², M. LOIZIDOU²

¹SEALEAU B.V., Delft, The Netherlands,

²National Technical University of Athens (NTUA), Athens, Greece

Introduction

The manufacturing sector includes a vast range of economic activities, performed by 2.1 million enterprises. Despite the large variety across and within these industrial sectors, there is one common aspect: every industry needs water for its daily operations. A large part of the water withdrawn is transformed into wastewater effluent, which in many cases is saline impaired. This wastewater is called brine and it contains a variety of anions and cations that can be recovered (with the appropriate treatment) as salts. The chlorides typically represent the largest concentration in the composition of brines.

European industrial sites are required to report data about industrial emissions since 2004 in the national competent authorities and then to the European Pollutant Release and Transfer Register (E-PRTR). Some countries like have established national PRTR databases. For The Netherlands this is called Emissieregistratie [1].

Methods

The research methodology is based on the following steps:

1. Recording of chloride releases by process industries.

The first step involves the extraction of useful information from databases and market reports/literature. The database used in this paper is the Emissieregistratie, the Dutch PRTR database. We looked into Sections B and C within the Nomenclature of Economic Activities (NACE) , which are entitled “B - Mining and quarrying” and “C – Manufacturing” respectively for the case study of the Netherlands. At a later stage selected (non-confidential) results in a database. In the framework of ZERO BRINE project, a software tool is being developed with the aim to connect the brine producers with the end-users of salt and water.

2. Recording of desalination plants.

Desalination plants installed at industrial sites were recorded, using market reports and other literature. At a later stage, a phone survey will be conducted, followed by interviews and meetings with identified stakeholders.