

Introduction

Petrokemija Plc., with its basic activities of fertilizer production, carbon black production and bentonite clay-based products has a significant impact on the environment. Major environmental aspects are pollutant emissions to air and water and waste management. The overall objective of the Company is to improve the performance of the environmental management system in order to achieve a more effective environmental protection and pollution prevention. The frame and the main guidelines of the strategic activities in the environmental and quality management are established by the Integrated management systems Policy. The key parts of the environmental management system, their mutual effect and connections between organizational units are described in Environmental Manual. The basic components of the environmental management process are planning the environmental protection activities in accordance with legal and other requirements, realization of the activities and assessment of environmental aspects in order to prove the environmental protection improvement by measurable indicators. Since 2004. Petrokemija Plc. implemented and certified Environmental Management System against the ISO 14001 standard requirements.

1. Air pollutant emissions

Greenhouse gases, CO₂ and N₂O, are the most present gases in total air emission of Petrokemija with overall amount of about 99 %.

Regarding other characteristic pollutants, the most present in total emission from process were ammonium (NH₃) and nitrogen dioxide (NO₂) as shown on figure 1.

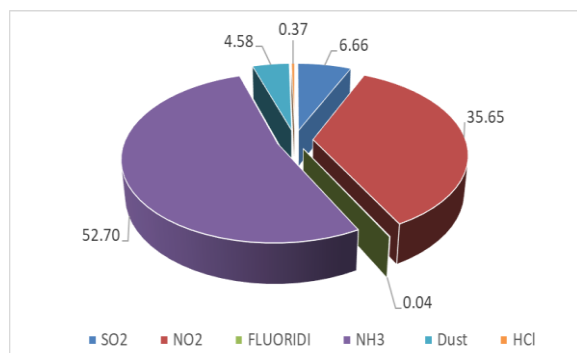


Figure 1.

Total annual emission in tonnes was 34,7 % lower regarding the previous year (figure 2).

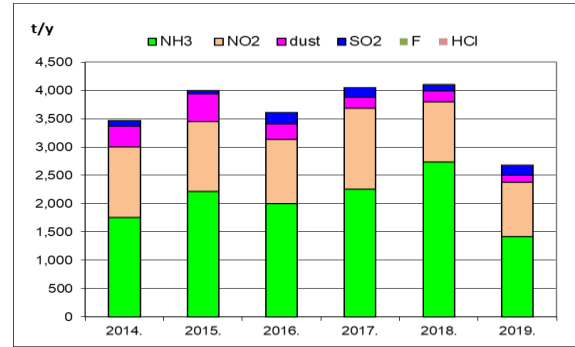


Figure 2.

Individually by every pollutant in tonnes lower quantities of NH₃, NO₂ and dust and higher quantities of SO₂ and F were emitted regarding to the previous year, while emission of HCl was at the same level.

Total emission factor for characteristic pollutants is 40 % lower regarding to the previous year (figure 3).

As regards to emission factors of individual pollutants per unit of product a decrease was established for NH₃, NO₂ and dust, and increase for SO₂ and fluorides.

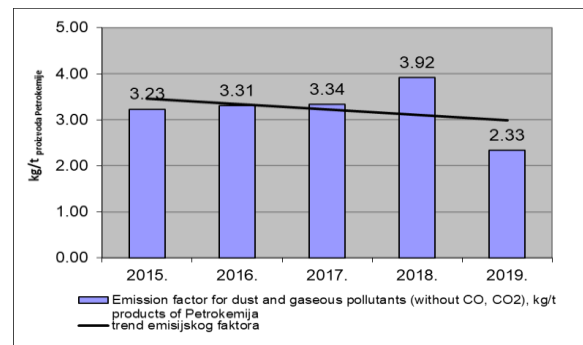


Figure 3.

With regard to the in-force prescribed emission limits, in line with the *Environmental Permit* the limit emission concentrations in 2019. exceeded at:

- 5 outlets for NH₃ (4 outlets at NPK 1 plant, 1 outlet at MAP/NPK 2 plant),
- 3 outlets for dust (1 outlet at NPK 1 plant, 1 outlet at MAP/NPK 2 plant, 1 outlet at Bentonite clay production plant),
- 1 outlet for NO₂ (Ammonia 2 plant),
- 1 outlet for SO₂ (Sulphuric acid plant).

With the aim of further improvement and decreasing the harmful effect to the environment harmonization with the best available techniques (BAT) is carried out by undertaking measures for bringing the existing facilities in compliance with the legislation as prescribed in the *Adjustment Plan od Directive 2008/1/EC* adopted by the European Commission as well as in the *Environmental Permit*.

2. Air quality in Kutina area

Air quality monitoring is carried out through the measuring station within state network for permanent air quality monitoring as well as the measuring stations within the local network. Air quality categorization for Kutina area regarding the measuring results is shown in table 1.

Regarding the results of air quality monitoring at four measuring stations of the local network for 4 pollutants at all stations 1st category was established (clean or slightly polluted air).

According to unofficial measuring results of the State Measuring Station (DMP) 1st category of air was determined for all pollutants except for PM10 where 2nd category was established.

Table 1.

1 st category C < LV	2 nd category C > LV	Pollutant
K2, DMP		Sulphur dioxide
K1, K2, K6, K7		Sediment
K1, K2, K6, K7, DMP		Ammonia
K2, DMP		Nitrogen dioxide
DMP		Hydrogen sulphide
	DMP	PM10

K1-Dom zdravlja, K2-Vatrogasni dom, K6-Husain, K7-Krč

Trend for long-standing concentrations of all characteristic air pollutants is decreasing. Figure 4 shows trend for concentrations of NH₃ in the air.

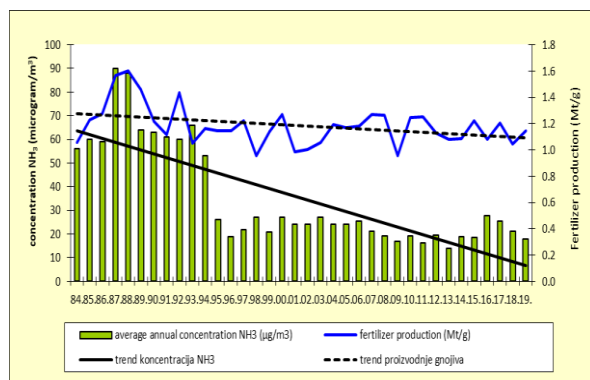


Figure 4.

3. Water management

In the period 2015 – 2018, the degree of waste water pollution in terms of pollution factor k1 indicates a trend of decrease in spot water samples (figure 5) but official data for 2019. is still unavailable.

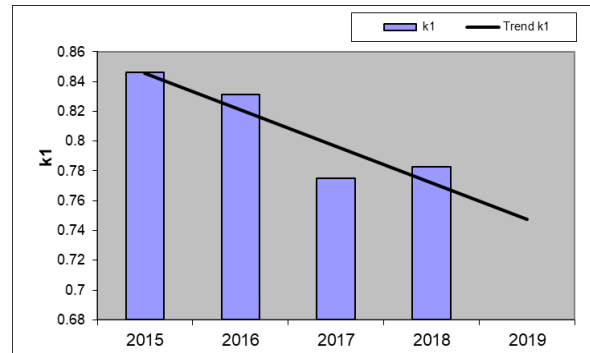


Figure 5.

Nitrogen concentration in the spot water samples in the measuring point Krč (measuring point D) is still below the limit value (Figure 6) as well as other parameters whose monitoring is prescribed by the *Environmental Permit*.

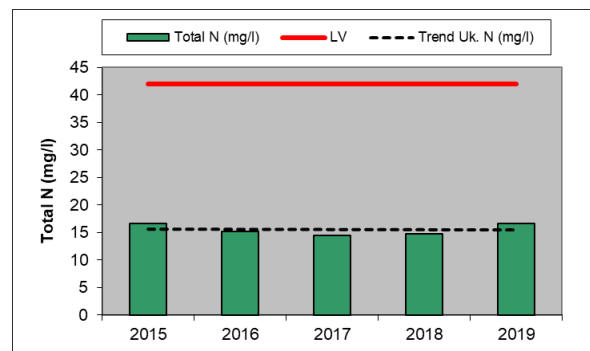
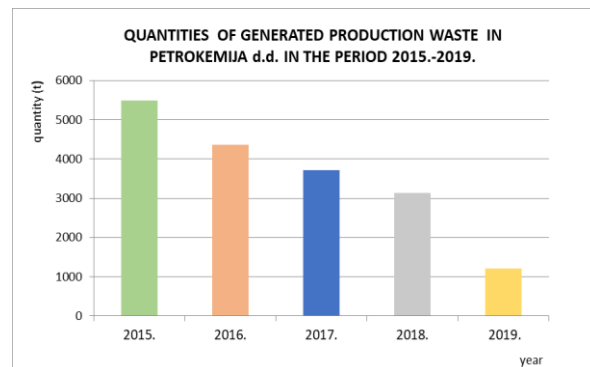


Figure 6.

4. Waste management

Petrokemija Plc. during 2019. generated 32 type of industrial waste (12 type of hazardous waste and 15 type of non-hazardous). The amount of produced industrial waste is 61 % lower than previous year. By the time when all quantity of waste is given to external authorized companies it is temporary disposed in prescribed way.



Two types of external waste was recovered at NPK 1 plant according to the valid permits. Quantity of generated municipal solid waste t is about 11 % lower than the last year.