

AERIUS Model assumptions and results

In order to determine potential N-emission impact on an environment caused by the process of construction a carbon capture and liquefaction unit at biomethane plant WABICO, a simulation was conducted using the AERIUS Calculator Model. Simulation results are attached to this document, however to better understand the results and provide more background, we would like to present following assumptions and their justification:

The model includes 3 main emission points:

1. Heavy transport

Trucks arrival represents a truck traffic and crane transportation from the Industrieweg, to the WABICO plant. It is considered to be a Heavy truck traffic (nl. Zwaar vrachtverkeer). Installation required in total 4 trucks and 1 crane, resulting in 0,014 movements in total per day, which is an input for the model.

Given the section under consideration and the fact that it runs through a built-up section that is not heavily used, it was assumed that the vehicle would not be in traffic, so a value of 0% was assigned to this factor.

2. Company cars

These are the cars of the plant's employees that travel the access road to the plant. Therefore, the route they take is the same as the heavy transport in point one. 30 car travels are expected, thus 0,081 per day.

3. Crane operation

The third source is crane operation. An equipment used as a reference is a crane from Spierings Mobile Cranes, with the following parameters:

- Max power (diesel generator): 100 kW,
- Built between 2014 and 2018, thus stage class determined as: Stage IV, 2014-2018, 75-560kW
- 16 hours at 50% power operation
- 200g/kWh (10L per hour) diesel fuel usage
- 5% Add blue

As a result, it was determined that crane usage results in 1,7 kg/year of NO_x emission and 38,4 g/year of NH₃ emissions.