



## IVR EMISSION CALCULATION TOOL

### INSIGHT INTO EMISSIONS & EFFICIENCY

Inland navigation is the greenest mode of transport for the transport of goods. In view of the energy transition, the sector will become even greener, with the aim of being virtually emission-free by 2050. Until then, further greening is necessary to reduce the amount of emissions as much as possible.

To gain insight, IVR has developed the Emission Calculation Tool. The Emission Calculation Tool gives an indication of the current emissions of an inland vessel and thus also provides insight into the efficiency of a vessel.



Because IVR believes it is important that the Emission Calculation Tool for the propulsion installation is easy accessible for all ship owners, we offer it free of charge through our own portal.



### WELL-TO-TANK TANK-TO-WAKE

The total emissions are split into into **Well-to-Tank (WTT) emissions** and **Tank-to-Wake (TTW) emissions**. WTT emissions occur during production and transport of the fuel to the ship, and TTW emissions occur when the fuel is used on board the ship.

### THE CALCULATION

Emissions are calculated per **kilowatt hour (kWh)** and per **ton-kilometer (tkm)**. The emissions per kWh meets the requirements when issuing emission labels and for designating emission standards (e.g. Stage-V).

The emissions per tkm give a more accurate picture, because it takes into account e.g. the distance and the cargo transported.

The tool calculates (an indication of) the most relevant emissions from the propulsion engine within the current and future laws and regulations: **carbon dioxide (CO<sub>2</sub>)**, **nitrogen (NO<sub>x</sub>)** and **particulate matter (PM)**.

### ACCESS FOR SHIP OWNERS

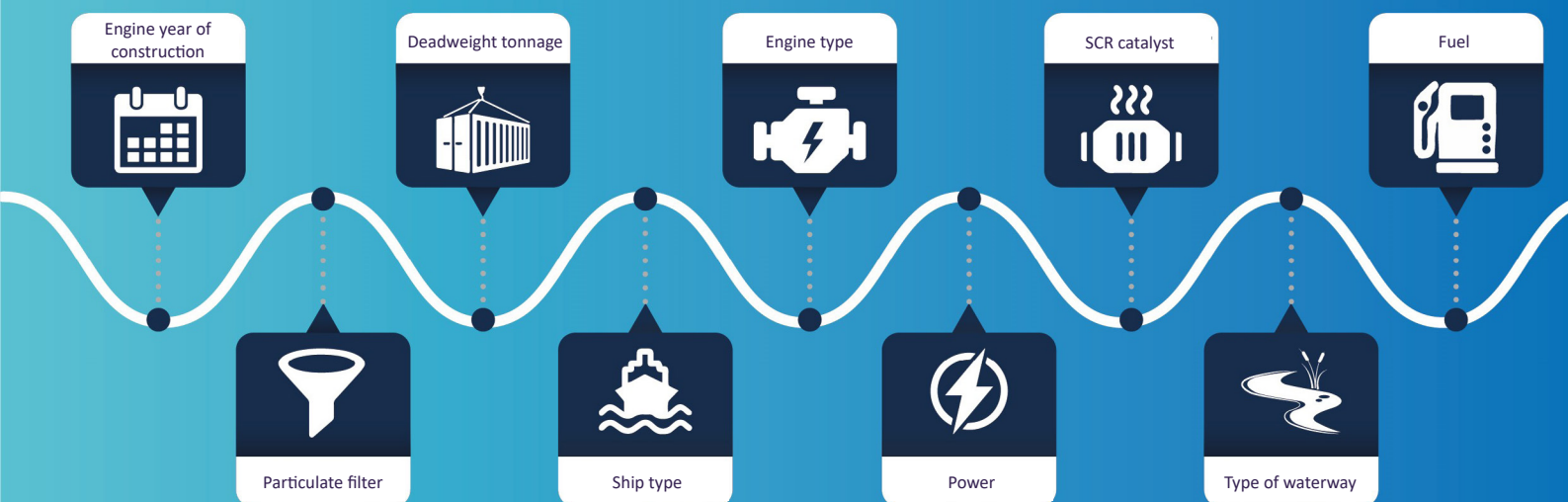
The Emission Calculation Tool is integrated into the **IVR Ships Information System**. Ship owners always have access to this vessel database (free of charge) and can therefore view the information we have registered for their ship(s) in our system. The use of the Emission Calculation Tool is also free of charge. Correct use of the tool requires correct input of data. Ship owners can modify and/or add information themselves. Click the button below to log in to the database. Do you not (yet) have an account? Then click here to register as a ship owner or send an e-mail with your ship and contact details to [info@ivr-eu.com](mailto:info@ivr-eu.com).

**IVR SHIPS INFORMATION SYSTEM**



# INDICATORS

The following indicators - among others - are used to make the calculation:



**FUEL** You can vary types of (alternative) fuel or percentages of blending in the tool to see the effect this has on your emissions.



In the tool, you will regularly find an information button with additional explanations about the data to be entered.

## ACCURACY

In general, the more reliable the data entered, the more reliable outcomes are.

To know a vessel's actual emissions, measuring equipment should be installed. Moreover, to calculate emissions per ton-kilometre, the distance travelled and weight transported should be tracked.

Installing measuring equipment and getting all the information on distances and cargo takes a lot of time, effort and money. The Emission Calculation Tool therefore tries to estimate emissions based on data that are readily available or that you can estimate yourself.

Some data about the vessel is retrieved directly from the database. Ship owners or other users still have to fill in the empty fields in the calculation tool.

## CALCULATION RESULTS

There are a number of ways to calculate emissions. Depending on the input provided, you can make a basic calculation (emissions/kWh) or a more precise calculation (emissions/kWh and emissions/tkm).

The following data can be entered:

- Basic data (year of construction, engine type and fuel)
- Additional data (including vessel type, cargo/capacity, SCR catalyst, particulate filter, etc.)
- Accurate data (including kilometres and fuel per time unit, average load factor and percentage of loaded sailing kilometres)

### Calculation of emissions/kWh

For a basic calculation of emissions/kWh, enter the basic data + SCR catalyst/particulate filter from the additional data. For an accurate calculation of emissions/kWh, fill in all fields.

### Calculation of emissions/tkm

For a basic calculation of emissions/tkm, fill in the basic data + additional data. For an accurate calculation of emissions/tkm, enter all data.

### Display results


After inputting the data, you will find the emissions/kWh directly below the completed fields. The emissions/tkm can be found in the graphs underneath.

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Scan the QR code to access the tool

## DISCLAIMER

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