

Case Study Determination of CO₂ emissions

In the following case study, the advantages of multimodal transport in terms of CO₂ reductions are demonstrated by a short practical example using the tools: Intermodal Links Planner and CO₂ Calculator.

Information on goods to be transported and transport route:

A chemical company in Linz wants to transport 15,000 tons of pesticides (liquid hazardous goods) to a customer in Valencia (Spain). Previously, the Linz-Valencia route (~2,000 km) was covered entirely by truck. The chemical company now wants to find a more sustainable transport solution to reduce CO₂ emissions and reduce the traffic causes by road transport.

Task:

In order to be able to solve the problem, the use of the two tools elements Intermodal Link Planner and CO₂ Calculator is necessary. The links to the two tools can be found below.

Use the Intermodal Link Planner to find ways to shift goods from road to more sustainable transport modes. Describe the advantages and disadvantages of the solution(s) you suggest using the two tools.

Use the CO₂ calculator to calculate the environmental impact of your new solution compared to truck transport.

In the table below you will find an overview of the advantages and disadvantages of the individual modes of transport.

An overview of the advantages and disadvantages of the various modes of transport:

Strengths/Weaknesses of road transport

<ul style="list-style-type: none"> high transport speed infrastructure networking capability flexibility technological progress low cost of ownership 	<ul style="list-style-type: none"> increasing costs time constraints → driving bans environmental aspects (CO₂ emissions, noise, accidents,...)
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Strengths/Weaknesses of rail transport

<ul style="list-style-type: none"> high transport speed ability to convey large quantities of goods per unit predictability safety transportation cost environmental aspects (CO2 emissions) 	<ul style="list-style-type: none"> crossing borders is difficult flexibility shipment tracking energy cost
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Strengths/Weaknesses of inland waterway transport

<ul style="list-style-type: none"> low transport costs ability to convey large quantities of goods per unit environmental friendliness safety availability around the clock low infrastructure costs 	<ul style="list-style-type: none"> dependence on fairway conditions low transport speed low network density, often requiring pre- and end-haulage
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The organisation of a multimodal transport is due to the many involved actors and the necessary handling processes more complex and requires an increased planning effort. By combining the different modes of transport, the advantages of each mode can be exploited and the disadvantages minimized. Road transport is particularly suitable for the pre- and post-carriage of multi-modal transport chains.

Tools:

Intermodal Link Planner:

Access: <https://intermodallinks.com/GetAccess>



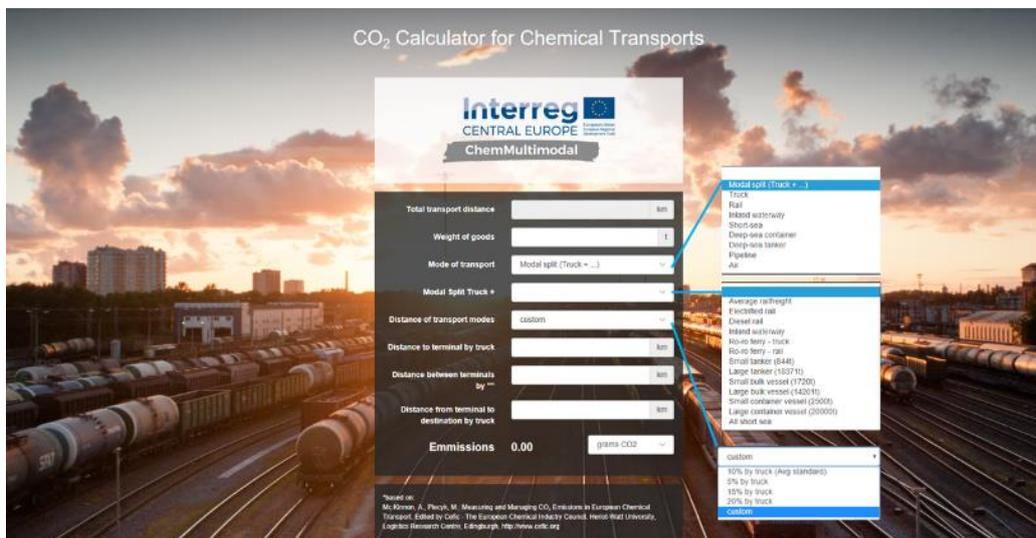
GET ACCESS



This tool visualizes intermodal connections in the European regions. It shows logistics service providers and their schedules operating on intermodal routes.

CO2- Calculation:

Access: <https://ifs150.mb.uni-magdeburg.de/chemmultimodal/>



The tool offers the possibility of measuring the CO2 footprint of transports with different modes of transport.