

Summary

In the design process of an import or export facility of bulk materials a selection has to be made from the wide availability of bulk material transportation equipment. It is nowadays possible to acquire your equipment from manufactures from all over the world, which could result in a better price and better equipment better suited for a specific condition. In order to make the first selection easier, an overview is presented in this report of the various types of equipment. The research question in this report will therefore be: "Which transport modalities for bulk materials are currently available for the transportation of bulk solid materials onsite or offsite at a bulk port and by which properties is it possible to make a selection for a specific purpose?".

To obtain a complete overview of the available equipment, a few categories are presented in this report. At first, six conveyors are presented and discussed followed by a comparison between the many available types. Next, rail equipment is discussed with an overview of railcars, loading and unloading equipment. After this, two types of trucks are discussed, namely the rigid dump trucks and articulated dump trucks, followed by a comparison between the two types. At last, the available wheelloaders are discussed. In total the bulk material transport equipment is now largely presented.

After discussing various types of bulk transport equipment, it is possible to conclude that the decision for a specific type of equipment in the first place is to determine the specific location of the equipment. It is possible to subdivide this location into three sections, namely in-port transport, out-port transport and dedicated out-port transport. Bulk transportation within a bulk port is possible using conveyors, trucks and wheelloaders. When high capacity is required, conveyors are the only possible solution. The selection for a specific type of conveyor can be done according to specific requirements like capacity, environmental issues, curvability of the terrain, material specifications and conveyor length. When transporting bulk material from the port to the customer, or vice versa, it is possible to utilize railcars and trucks. When a high throughput is required, it is only possible to use railcars. The port can be connected to the national network, enabling the port to export or import bulk material to or from a large region. Depending on the specifications of the transported material, the choice for a specific railcar and (un)loading equipment can be made. At last, it is possible to connect a port to a customer using a dedicated transport system. For this system only conveyors or railcars are suited. It is possible to make a choice between the two modalities according to the required specifications like throughput, terrain, running period and material specifications.