

Total vessel recycling, reuse with new 'passport'

Press Release 6

Maersk Line's Triple-E vessel will set a new standard for sustainable ship building and recycling by introducing the most comprehensive material documentation system the shipping industry has ever seen.

To eliminate waste and ensure the safest and most efficient handling of the ship's materials once it is removed from service, each Triple-E vessel will come with a 'cradle-to-cradle passport'. This will be a living document, describing the material composition of every piece of the ship.

The term cradle-to-cradle refers to the optimal lifecycle of the materials in a product: specifically that they should either biodegrade and be absorbed back into nature or be recycled. Not wasted.

Maersk Line worked with the Environmental Protection Encouragement Agency (EPEA), a German organisation which specialises in the cradle-to-cradle concept, to develop the idea for its passport.

"This is about eliminating waste. We are not only investing millions of dollars in buying ships, we are also investing millions of dollars in tonnes of materials, some of which are limited resources. If we can define and locate all the materials, it greatly improves their value and reusability for future vessels, containers and more," says Jacob Sterling, Head of Climate and Environment in Maersk Line.

"Instead of finding new materials in the ground, the cradle-to-cradle concept shows the potential for companies to meet their needs for raw materials by using their products as healthy material-banks," says Søren Lyngsgaard, director of the EPEA in Copenhagen.

Maersk Line already has a Green Ship Recycling Unit, which has worked with a shipyard in China to safely recover and dispose of hazardous materials on more than 50 vessels in the last decade. With the cradle-to-cradle passport Maersk Line is dramatically expanding the scope of that effort from safe and effective recycling of hazardous materials to recycling and reuse of all materials.

It will be not be easy to map all the individual parts of the world's largest vessels and it will require much of the next two years to develop the passport in time for the vessel's delivery. Roughly 98 percent of the Triple-E's 60,000 metric tonnes is made from five grades of steel. But there is also copper, plastic, wood, glass and other minerals throughout her 400 meter length, all of them manufactured by hundreds of different vendors. All of it should be documented in the cradle-to-cradle passport.

"This is unknown territory for us and we have an absolutely huge amount of work ahead. Ultimately, what we want is to develop and implement this as a new standard with verification from the shipping class societies. We believe this is a step that shipping can take towards becoming a no waste industry and even a resource provider for future generations," says Sterling.

FACTS >>>



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FACTS: Cradle-to-cradle passport

- The Triple-E vessels will with their unique cradle-to-cradle passports describe how the materials and components used to build the ship should be safely dismantled once the ship's service lifecycle has expired
- The cradle-to-cradle concept essentially means that materials will not only be recycled, but used for the same or even more advanced constructions or products ('up-cycling')
- The other part of cradle-to-cradle concept concerns avoiding toxic materials and instead using bio degradable resources to the largest extent and where possible
- This is the first time a cradle-to-cradle passport has been introduced in the container shipping industry
- Maersk Line is developing the cradle-to-cradle passport together with the Environmental Protection Encouragement Agency (EPEA), which specialises in the cradle-to-cradle concept
- Many other leading global companies in other industries use the EPEA cradle-to-cradle concept as part of their business model
- EPEA estimates that the energy consumption and CO₂ emissions for steel production can be reduced by 50 percent if recycled steel could be used instead of steel made from iron ore. A cradle-to-cradle passport will facilitate this
- EPEA furthermore underlines how the recycling of steel will reduce mining which is known to be hazardous for the environment
- Scrapping of large container vessels has been a threat to the environment in the past because of toxic materials. Triple-E will to the largest possible extent be constructed without toxic materials. For example there will be no asbestos and a minimum of PVC in the final construction of the ship
- Maersk Line has a vision that all future new buildings of ships should be 100 percent recyclable. With the chosen materials for Triple-E we believe that we will be above 90 percent
- ML vessels are all recycled at approved facilities in China
- Most steel in a ship can be recycled and reused when a ship is scrapped. But different steel grades and different metals are mixed and therefore the resulting quality of the recycled steel is lower than the original steel ('down-cycling'). By keeping different steel grades and metal types separate in a cradle-to-cradle passport it is possible to maintain a higher metal quality
- The advantage of maintaining material value obviously holds a monetary upside. But keeping the materials' usability high also means less exploitation of natural resources

