



# Bundesstelle für Seeunfalluntersuchung

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236/20

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**Date**  
**25.05.2023**

## **PRESS RELEASE No. 07/23**

The Federal Maritime Accident Investigation Bureau (BSU) hereby announces the publication on 25 May 2023 of the investigation report 236/20 on the fire in the scavenging air duct of the main engine on board the EBBA MAERSK on 29 July 2020. The report investigates the reasons for the fire, looking at marine fuels in general and the injection system of this particular engine, among other things.

The investigation report is available for download at

<https://www.bsu-bund.de/EN/News>

### **Serious Marine Casualty – Fire in the main engine scavenge air duct on board the EBBA MAERSK on 29 July 2020**

On 29 July 2020, the EBBA MAERSK was en route from Felixstowe (UK) to Hamburg (Germany). After the changeover from a conventional heavy fuel oil to a low-sulphur light fuel oil, a fire broke out in the main engine's scavenge air duct.

The EBBA MAERSK has a common-rail engine as her main engine. The ship has to change to a low-sulphur fuel for sea voyages in areas with sulphur emission limits (sulphur emission control areas, SECA). The amount of heavy low-sulphur fuel on board that day was not sufficient for the voyage segment up the River Elbe to the pier in Hamburg. Accordingly, the main engine was changed over (contrary to usual practice) to a light low-sulphur fuel, which was available in sufficient quantity.

Shortly after the changeover was completed, the exhaust gas temperatures of three cylinders successively began to rise above the normal level. One cylinder had to be disengaged electronically. After a brief cooling period, this cylinder's exhaust gas temperature began rising again, even though the cylinder was no longer being actuated. Shortly afterwards, 'Fire in scavenge air duct' alarms sounded for the

forward six of the 14 cylinders. The engine department quickly verified this. It was immediately communicated to the bridge that the engine had to be shut down without delay. They anchored immediately, initially to the east and just outside of the Elbe Approach traffic separation scheme.

The fire in the scavenge air duct was extinguished using the designated system. A thorough inspection of the scavenge air duct was carried out after the engine had cooled down. No damage to the cylinder units was found. However, two of the injection control units (ICUs) were clogged with a tar-like substance. They were overhauled and reinstalled.

During the investigation of this accident, the BSU was especially interested in whether the characteristics of the relatively 'young' low-sulphur heavy fuel oils could have played a role in the development of the fire.

The investigation section of this report begins with two chapters providing fundamental knowledge, one on the subject of limiting sulphur in marine fuels, and one on marine fuels in general. The chapters that follow describe the ship and then the engine, in particular the technical functionality of the ICUs.

Furthermore, the fuel changeover process is considered in greater detail, as are various laboratory analyses. Publications from Wärtsilä (concerning the observed problems, some of them released years before the accident) were also included in the investigation.

A bachelor thesis on the subject of this damage delivered important findings for the investigation report.

All investigation reports, safety recommendations and other information published by the BSU are available at

<https://www.bsu-bund.de/EN/Publications>.

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Director