

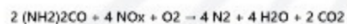
DEF PRODUCT PUSRI

DIESEL
EXHAUST
FLUID



One of the provisions in the Regulation of the Minister of Environment and Forestry no. 20 of 2017 which is effective until April 2022 is the regulation of the implementation of the Euro 4 standard on exhaust gases from four-wheeled or more motor vehicles. The impact is that since the second quarter of 2022, sales of Euro 4 and Euro 5 standard diesel trucks that have Selective Catalytic Reduction (SCR) technology have begun in Indonesia.

SCR (Selective Catalytic Reduction) technology is used to reduce NOx in exhaust gas. NOx will be reduced to N2 on the catalyst in the SCR unit with the help of DEF (Diesel Exhaust Fluid) through the following reaction:



Unfortunately, the DEF solution that we found in several locations in Indonesia and sold in online markets is a repackaged DEF solution product from abroad.

As a company that cares about environmental sustainability which has successfully achieved the gold proper in 2022, PT Pusri Palembang initiated the development of DEF products.

The PKM PUSRI DEF TEAM has conducted studies, developed prototypes and tested the performance of the prototypes developed to reduce emissions.

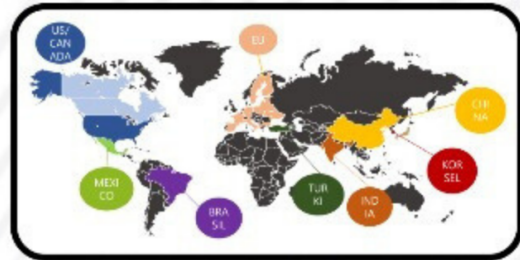


The PKM PUSRI DEF TEAM has tested several raw material formulations for the best DEF products. The composition of the IB and IIB product mix is the most optimal with extra-treatment through filtration. Additives in the form of anti-corrosive, anti-icing, and preservatives are also added to the DEF product composition.

Based on the results of laboratory tests conducted at BRIN and Sucofindo, the DEF solution has met the standard parameters in ISO 22241:2019.



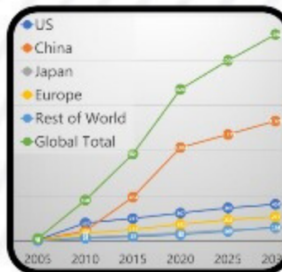
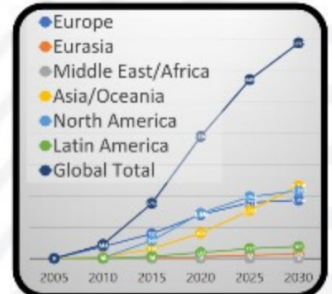
DEF MARKET PUSRI



Countries in the world that have implemented the EURO VI standard as shown in the graph below are the market for DEF products.

TRANSPORTATION SECTOR DEMAND

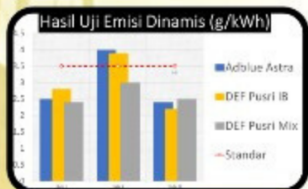
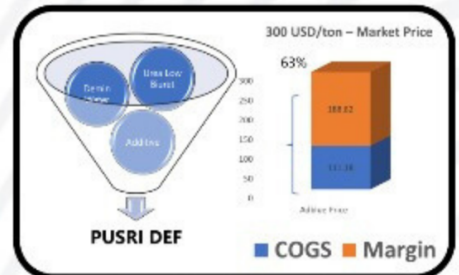
From this market, the projected need for DEF products will continue to increase until 2030. In 2025, the global need for urea raw materials for DEF will reach 5.69 million tons and in 2030 it is estimated to reach 6.86 million tons. This projection is only for the needs of the transportation sector.



INDUSTRIAL SECTOR DEMAND

In addition to the transportation sector, there is also a need from the industrial sector to reduce NOx emissions. The projected need from the industrial sector reaches 2 million tons in 2025 and 2.3 million tons in 2030.

The calculation of production cost during the prototype manufacturing process was 111.8 USD/ton, where at that level it could provide a 63% margin against the international DEF price assumption of 300 USD/ton.



PUSRI DEF
SOLUTION FOR EMISSION



*Off taker to end user consumer and euro-5 diesel vehicle