

Another analysis shows total CO₂ emissions resulting from the direct or indirect consumption of energy per engine produced during the reporting period:

DEUTZ Group: Emissions per engine in our plants¹⁾

Emissions per engine	2016	2015
Carbon dioxide (kg)	470	460
Nitrogen oxide (kg)	0.22	0.128
Dust (g)	2.7	2.6
Benzene (mg) ²⁾	<85.0	44.8

¹⁾ CO₂ in plants in the DEUTZ Group, excluding joint ventures. The other data relates to German plants.

²⁾ Measurement uncertainty is three times higher than the measured value.

There was a small year-on-year increase in carbon dioxide emissions per engine, which rose by 2.2 per cent. This means that the target of reducing carbon dioxide emissions by 2.0 per cent per engine produced was not achieved. The reason for this is that around two-thirds of the test bay emissions are attributable to research and development activities, whereas production testing only accounts for about a third. More endurance testing aimed at refining engines with large cubic capacities and improving product quality led to the increase. Ultimately, however, these tests play a part in ensuring that our future engines put fewer emissions and less CO₂ into the environment when they later go into operation. The per-engine level of other emissions (dust, nitrogen oxide and benzene) also increased in 2016 for the same reason, even though the revision rate in engine production has been successfully lowered and testing programmes have been significantly streamlined and further standardised.

The state-of-the-art, high-performance exhaust gas aftertreatment system used in the production test bays at the German sites ensures that DEUTZ remains comfortably within permitted limits and, in some cases, is very significantly below them.

FOCUS ON WATER POLLUTION CONTROL

The relocation of shaft production provided an opportunity to check that the production machines were not causing water pollution. This thorough inspection of the machines was carried out in order to pinpoint and completely eliminate any leaks from what are normally inaccessible places.

Moreover, the collection trays were designed with generous dimensions on-site by a specialist company. We invested €450 thousand in the installation of the collection trays, which play a key role in water pollution control.

All equipment that can contain or collect water pollutants and that is subject to mandatory inspection requirements is inspected at defined regular intervals by experts in order to comply with water pollution control requirements and increase technical uptime.

The risk of contaminating water courses and soil as a result of operating this equipment has been significantly reduced because we invested in renewing our machinery as part of the relocation of shaft production from Cologne-Deutz to Cologne-Porz.

SAFETY MANAGEMENT

Over the past few years, ongoing measures in the area of occupational health and safety have led to a reduction in the frequency of accidents.

However, the latest environmental KPIs show that the frequency of accidents¹⁾ and the number of notifiable accidents per thousand employees has increased despite safer workplaces being designed and improvements made to our health and safety organisation. Accident frequency, which is the number of notifiable workplace accidents in relation to the number of hours worked, stood at 20.9 in 2016 (2015: 12.9) and was thus significantly higher than in the previous year. Similarly, the number of notifiable accidents per thousand employees increased to 27.9 (2015: 17.7). The investigations carried out after the accidents did not reveal any clear systemic reasons for the accidents so, after reviewing the risk assessments, the necessary instructions were provided to the individuals affected in most cases.

One of the ways in which the DEUTZ AG safety organisation has been improved is the provision of cross-departmental training for fire wardens. This training, which consists of both theoretical and practical parts, was run by the works fire brigade.

¹⁾ Accident frequency: number of accidents per million hours worked (as defined by the employers' liability insurance association).