

Corporate responsibility continued

Environment, health and safety

Morgan is committed to protecting the health and safety of employees and others affected by its operations. It seeks to minimise the environmental impacts of its activities and maximise the positive effects of its products and services through its environmental, health and safety (EHS) programmes.

Morgan is committed to operating in a manner that achieves high standards of health and safety for employees and others affected by its operations.

This commitment is reflected in the Group's core health and safety values set out below and which are available in 17 languages across the Group:

- We are committed to creating a culture and environment that is 'zero harm' with no accidents or illness due to our activities.
- We encourage and expect our employees and contractors to be passionate about safety.
- We are dedicated to creating a positive safety culture based on openness, transparency and responsibility.
- We support a safe working culture through investment and training.
- We engage with our people to continuously improve safety knowledge, reporting and performance through our commitment to Morgan's 'thinkSAFE' programme.

The Group is also committed to minimising the impact of its business on the environment and maximising the positive environmental benefits of its products. Examples of Morgan's products which help enhance the environmental performance and efficiency of the Group's customers are included in pages 18 to 19 of this Report.

Under the Companies Act 2006 (Strategic Report and Directors' Report) Regulations 2013, the Group is required to report its annual greenhouse gas emissions for the year in its Directors' Report. This information is shown on page 51 and includes CO₂ emissions due to energy use, which are further analysed in this section, together with other sources of greenhouse gases emissions.

2017 highlights

- In 2017 the total number of accidents was 678, (2016: 767), however a higher proportion of these were lost-time cases than in 2016. (LTA 2017: 75, 2016: 53, 2015: 91)
- Environmental performance was mixed in the year. Whilst the Group exceeded its water intensity and recycling targets it did not achieve its waste intensity or its CO₂e¹ and energy intensity targets. The Group achieved a 4.9% reduction in water use intensity and a 0.9% reduction in waste intensity with absolute reductions off-set by lower revenue at constant-currency. The proportion of total waste recycled improved by 11%. CO₂e intensity increased by 1.6% and energy intensity by 2.3%.
- Morgan 'thinkSAFE', the Group's safety performance improvement programme, focused on machine guarding, 'Take 5 for Safety' (5S), Bright, clean and 'thinkSAFE' and industrial vehicle safety.
- At the end of 2017 the Group adopted a new, Board approved safety improvement plan for 2018 and beyond which looks to refresh 'thinkSAFE' and strengthen Group safety capabilities.
- Morgan participated in the Carbon Disclosure Project (CDP) 2017 and achieved a score of B which places the Group in the top third of the CDP's FTSE 350 Industrial sector. This ranking testifies to the Group's climate change and energy related disclosure and performance.

1. CO₂e. Carbon Dioxide Equivalent – the amount of carbon dioxide or the amount of non-CO₂ greenhouse gas with the equivalent global warming potential.

EHS Policy

Morgan's EHS Policy sets out the Group's commitment to protect and enhance the environment and to the health and safety of all those affected by our operations. The Policy is regularly reviewed and is communicated across all sites within the Group. The Policy applies to all businesses worldwide and is published on the Group's website and in the annual EHS Report. It forms the basis for Executive Committee and management oversight of the implementation of the Group's EHS programmes.

EHS Policy governance

Governance of Morgan's EHS Policy is achieved through performance monitoring, risk assessment and the management and mitigation of identified risks to help provide continuous improvement in EHS performance in support of the Group's strategic priorities.

The Group is committed to providing effective leadership in pursuit of an injury-free and environmentally responsible work place. The Chief Executive Officer and the operational management team are responsible for EHS performance. The Group's Director, Environment, Health and Safety is responsible for Group direction and the oversight of the Group's EHS programmes. There are EHS leaders in each of the global business units, and each site has a single point of accountability. These global specialists reports to their respective management team and are responsible for improving the standards of EHS management and performance across the Group's businesses.

Morgan's Group level EHS management processes include:

- Monthly review of performance and progress in the implementation of our improvement plans by the Executive Committee and business leaders.
- Regular review of EHS performance by the Board.
- The EHS Compliance Audit Programme conducted against the Morgan EHS Framework with a focus on high-risk items. The programme also covers the EHS management systems and the EHS KPIs reported by each site and helps ensure compliance with local regulations and good management practice. All the Group's manufacturing facilities are reviewed on a three-year rolling cycle. Accordingly, 24 sites were audited during 2017. The audit reports are reviewed by the Director, Environment, Health and Safety and by members of the Executive Committee and Divisional Executive teams. Action items are tracked through a formal follow-up process.

- Formal training is an integral part of the implementation of the Group's EHS Policy. This is undertaken at a regional level and tailored to business-specific risks and opportunities, with Group-level support and oversight.
- External assurance of selected EHS data by ERM Certification and Verification Services (ERM CVS). The Assurance Report from ERM CVS is on page 50.

Taking site openings and closures into account, in 2017 environmental management systems were in place at 90 sites worldwide, including 38 sites certified to ISO 14001. Worldwide, 102 sites have health and safety management systems in place, with 15 sites certified to, or working towards, OHSAS 18001.

EHS Policy effectiveness

The Group monitors the effectiveness of its EHS Policy through its external EHS compliance audit programme, its internal EHS audit programme, review of performance against a series of Group-wide KPIs, its external assurance programme and by participating in a number of external initiatives.

The charts on pages 47 to 51 represent the Group's EHS performance, covering all production sites during the year.

The independent external assurance performed by ERM CVS covered the Group's lost-time accident frequency rate, CO₂e intensity, energy intensity, waste intensity, water intensity and the waste recycling rate. The Assurance Report from ERM CVS is set out on page 50.

The Group also participates in external initiatives that help to benchmark the effectiveness of and progress against its EHS Policy. These include the Carbon Disclosure Project (CDP) in respect of the Group's climate-change-related strategies, risks, management and performance. In 2017, Morgan achieved a score of B placing it in the top third of the CDP's FTSE 350 Industrial sector. This reflects the Group's performance, and the depth and quality of climate-change data disclosed to investors and the global marketplace through the CDP.

The Group has also made filings in respect of the Group's UK facilities under the UK government's Carbon Reduction Commitment (Energy Efficiency) Scheme.

CO₂e⁵ intensity due to energy use^{1,2}

Tonnes CO₂e/£m revenue³



CO₂e⁵ due to energy use^{1,2}

Tonnes³



Energy intensity^{1,4}

MWh/£m revenue³



Energy use^{1,4}

GWh³



1. The 2017 CO₂e intensity and energy intensity information has been subject to assurance by ERM CVS. For further details of the assurance provided see the Independent Assurance Report on page 50. Further details of the 2016, 2015, 2014 and 2013 assurance are included in the Independent Assurance Reports on page 47 of the 2016 Annual Report; page 32 of the 2015 Annual Report; page 30 of the 2014 Annual Report; page 31 of the 2013 Annual Report.
2. Scope 1 CO₂e emissions from fossil fuel usage and Scope 2 CO₂e emissions using market-based methodology and country-specific electricity factors as CO₂e factors are not consistently available for electricity use in all countries.
3. Calculated on a constant-currency revenue basis, updated to reflect clarifications and changes in reporting methodology to ensure year-on-year consistency.
4. Energy from all sources.
5. CO₂e. Carbon Dioxide Equivalent – the amount of carbon dioxide or the amount of non-CO₂ greenhouse gas with the equivalent global warming potential.

Corporate responsibility continued

Waste intensity^{1,3}

Tonnes waste/£m revenue²



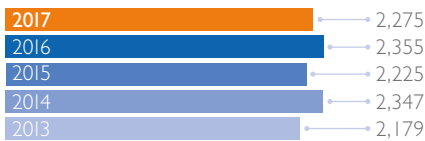
Waste^{1,3}

Tonnes²



Water intensity^{1,4}

m³/£m revenue²



Water use^{1,4}

million m³²



1. Morgan's 2017 water intensity, waste intensity and waste recycling rate information has been subject to assurance by ERM CVS. For further details of the assurance provided see the Independent Assurance Report on page 50. Further details of the 2016, 2015, 2014 and 2013 assurance are included in the Independent Assurance Reports on page 47 of the 2016 Annual Report; page 32 of the 2015 Annual Report; page 30 of the 2014 Annual Report; page 31 of the 2013 Annual Report.

2. Calculated on a constant-currency revenue basis, updated to reflect clarifications and changes in reporting methodology to ensure year-on-year consistency.

3. Hazardous and non-hazardous waste, including recycled material.

4. Water from all sources, including process, irrigation and sanitary use.

Environmental performance

The Group is committed to environmental responsibility and works to minimise the impact of its business on the environment and to maximise the positive environmental benefit of its products.

The Group monitors the material impacts of its operations on the environment as measured by its Scope 1 CO₂e and Scope 2 CO₂ emissions, its energy, waste and water intensity per £ million of revenue and the proportion of total waste which is recycled.

Morgan sets Group-wide targets for improvement in environmental performance, and each production site also sets specific internal targets which are reviewed as part of the annual budget process to ensure they are aligned with and contribute to the Group's targets. Further details of the Group's EHS targets and objectives for the coming year will be included in our 2017 EHS Report which is scheduled for publication on the Group website in mid-2018.

Throughout 2017, the Group undertook a series of projects and environmental programmes focused on those sites identified as having the greatest environmental impact. These are subject to regular review and follow-up by the Executive Committee to ensure key opportunities and risks are addressed. In addition, Divisional programmes covering topics such as energy awareness help to enhance business and environmental performance and competitiveness.

These programmes helped the Group to achieve its targets to reduce water and waste intensity and to increase recycling in the year.

In absolute terms, the 2017 CO₂e emissions due to energy use were 332,600 tonnes, in line with 2016. Absolute energy use in 2017 was also similar to 2016. Based on revenue at constant-currency CO₂e intensity increased by 1.6% compared to prior year. Energy intensity in 2017 increased by 2.3% compared to the prior year.

The five-year performance charts reflect reductions in energy and CO₂e intensity from 2013. The Group continues to work on a number of production improvement projects which include energy-efficiency programmes. These are aimed at driving year-on-year performance improvement in energy and CO₂e intensity.

In 2017 total waste reported was 45,500 tonnes, a decrease of 2.2% compared to 2016. Waste intensity reduced by 0.9% compared to 2016. Morgan did not achieve its 2.5% waste intensity reduction target for the year.

The proportion of total waste which was recycled in 2017 was 56%, an improvement of 11% compared to 2016. Morgan exceeded its target to increase the proportion of total waste which is recycled by 1% year-on-year. A significant part of the improvement was due to the identification of additional opportunities for third parties to re-use waste streams at the Group's site in Augusta, Georgia, USA.

Total water use in 2017 was 2.32 million m³, a reduction of 4.9% compared to 2016. Water use intensity at constant-currency reduced by 3.4% compared with 2016, exceeding the target to reduce water intensity by 2.5% in the year. Many sites around the world and particularly in Asia, where water is a limited resource, continued to deliver strong improvements in water use over the period.

2018 priorities for environmental performance:

- Explore opportunities to further the Group environmental strategy through the development of a 'Morgan thinkGREEN' programme.
- Continue the focus on environmental improvement projects at sites with the biggest environmental impact.
- Extend the benchmarking of sites with similar production technologies to encourage implementation of best practice and improvement plans.
- Focus on robust ownership and delivery of environmental targets at site, business and Divisional levels.
- Review and develop opportunities to increase the use of renewable energy.
- Report Morgan's carbon footprint on the basis of market and location-based methods to further reflect efforts to de-carbonise our business.

Health and safety performance

With the long-term aim of an injury-free workplace, Morgan is committed to its health and safety core values and to conducting all its activities in a manner that achieves high standards of health and safety for all employees and stakeholders. The Group's long-term objective is 'zero harm'. We aim to deliver year-on-year improvements in performance as we progress towards this objective.

The Group's health and safety policies are clear and communicated throughout the Group. Health and safety metrics receive a high degree of focus at all levels of the business. Policy statements are supported by site-level assessment and monitoring of risks.

In 2017, the Group's accident prevention and training programmes focused on reducing accident occurrence through an emphasis on leading indicators supported by behavioural safety initiatives and training as part of the 'thinkSAFE' programme. The five-year health and safety charts and the performance review in this report cover the Group's 2017 health and safety performance.

The Group's health and safety KPIs include accident frequencies, causes and related lost working time. These are reviewed monthly to monitor the effectiveness of the Group's health and safety policies and related systems. The independent external assurance performed by ERM CVS covered the Group's lost-time accident (LTA) frequency rate.

Aggregating manufacturing sites and sales offices, the Group has over 130 locations worldwide, 70% reported no LTAs during the year, with other sites improving on their accident frequency rates from 2016.

The Group's total accident frequency per 100,000 working hours was 3.49, a reduction of 10.4% on 2016, LTA frequency was 0.39 per 100,000 working hours (2016: 0.27, 2015: 0.45) with a total of 75 LTAs reported (2016: 53, 2015: 91).

Whilst total accident frequency decreased compared to the prior year the Group's overall 2017 LTA performance was behind that achieved in 2016. In the first quarter 19 Morgan employees from around the world were involved in a road traffic accident while travelling to a management meeting at the Thermal Ceramics site in Augusta, GA, USA.

The vehicles in which the Morgan employees were travelling were stationary whilst at a red traffic light when they were struck from behind by a third-party travelling at speed. Eighteen Morgan employees were injured with 11 suffering lost-time accidents, which resulted in 532 working days lost in the year.

Reported lost time due to accidents and work-related illnesses as a percentage of working time increased to 0.13% in 2017 (2016: 0.06%; 2015: 0.08%). The number of days lost during 2017 was 3,040 (2016: 1,422, 2015: 2,135). The average number of days lost in 2017 per LTA reported in the year increased to 40.5 days (2016: 26.8; 2015: 23.5).

In the fourth quarter of the year the Board approved a new safety improvement plan and strategy. The programme will see the refresh of the Morgan 'thinkSAFE' standard with additional training, further employee engagement on safety and clearer local communication of progress. The improvement plan will be reinforced with a review of leading and lagging indicators and improved incident management combined with a review of skills, competencies and resources.

2018 priorities for health and safety:

- Implement the new safety improvement plan and strategy for 2018 onwards.
- Strengthen and refresh 'thinkSAFE' as the platform for safety performance improvement Group-wide with a particular focus on employee engagement and interaction through each site's safety corner.
- Drive a consistent approach to safety at all sites through 'thinkSAFE'.
- Update the Group's safety framework to ensure compliance and to focus on key risk identification and management taking account of scale and opportunities for simplification.
- Increase the use of safety data and information to support performance improvement, to inform decision-making and to ensure accountability.
- Develop a Safety Technical Leadership Committee to help implement safety strategy and to provide tactical support to site management to embed the culture of zero-harm.
- Focus on reducing the time lost by each lost-time accident through appropriate return-to-work initiatives.

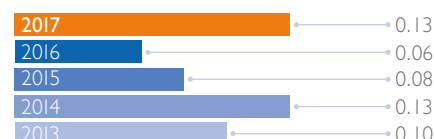
Lost-time accident frequency^{1, 2}

LTA/100k hours worked¹



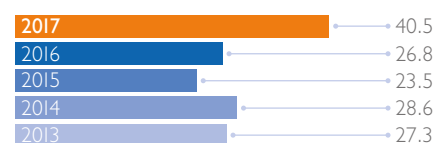
Health and safety-related lost time

% of total working time



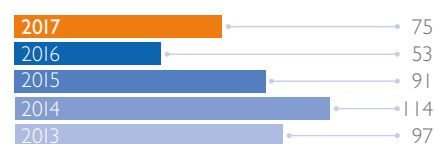
Lost-time per LTA^{1, 2}

Days per LTA³



Lost-time accidents²

Number of LTAs¹



Health and safety-related lost time

Days lost due to LTAs¹



1. Morgan's 2017 lost-time accident frequency information has been subject to assurance by ERM CVS. For further details of the assurance provided see the Independent Assurance Report on page 50. Further details of the 2016, 2015, 2014 and 2013 assurance are included in the Independent Assurance Reports on page 47 of the 2016 Annual Report; page 32 of the 2015 Annual Report; page 30 of the 2014 Annual Report; page 31 of the 2013 Annual Report.

2. A lost-time accident (LTA) is defined as an accident or work-related illness which results in one or more days' lost time.

3. Total time lost due to health and safety in the year divided by the number of lost time accidents reported in the year.

Independent assurance report

Independent Assurance Statement to Morgan Advanced Materials plc

ERM Certification and Verification Services (ERM CVS) was engaged by Morgan Advanced Materials plc (Morgan) to provide limited assurance in relation to specified 2017 EHS performance data in Morgan's Annual Report for the year ended 31 December 2017 ('the Report') as set out below.

Engagement summary	
Scope of our assurance engagement	<p>Whether the following EHS performance data for the year ended 31 December 2017 are fairly presented, in all material respects, with the reporting criteria:</p> <ul style="list-style-type: none"> → GHG: Total Scope 1 and Scope 2 emissions due to energy use in tonnes CO₂e; CO₂e intensity (tonnes CO₂e/£m revenue) → Total Energy use (GWh) and Energy intensity (MWh/£m revenue) → Water use (million m³) and Water intensity (million m³/£m revenue) → Waste (tonnes) and Waste intensity (tonnes/£m revenue) → Recycling rate; and → Safety: Number of lost time accidents (LTAs) and Lost Time Accident Frequency (LTAs/100K hours worked).
Reporting criteria	Morgan's own internal reporting criteria and definitions are set out in the Environment, Health and Safety section of the corporate website: www.morganadvancedmaterials.com/media/4632/mgam-ehs-reporting-criteria-2016.pdf
Assurance standard	ERM CVS' assurance methodology, based on the International Standard on Assurance Engagements ISAE 3000 (Revised).
Assurance level	Limited assurance.
Respective responsibilities	<p>Morgan is responsible for preparing the data and for its correct presentation in reporting to third parties, including disclosure of the reporting criteria and boundary.</p> <p>ERM CVS's responsibility is to provide conclusions on the agreed scope based on the assurance activities performed and exercising our professional judgement.</p>

Our conclusions

Based on our activities, nothing has come to our attention to indicate that the EHS performance data for year ended 31 December 2017, as listed above, are not fairly presented, in all material respects, with the reporting criteria.

Our assurance activities

Our objective was to assess whether the selected data are reported in accordance with the principles of completeness, comparability (across the organisation) and accuracy (including calculations, use of appropriate conversion factors and consolidation). We planned and performed our work to obtain all the information and explanations that we believe were necessary to provide a basis for our assurance conclusions.

A multi-disciplinary team of EHS and assurance specialists performed the following activities:

- Interviewed relevant staff to understand and evaluate the data management systems and processes (including IT systems and internal review processes) used for collecting and reporting the selected data.
- Reviewed of the internal indicator definitions and conversion factors.
- Visited four sites (USA, India, China and Germany) to review local reporting processes and consistency of reported annual data with selected underlying source data for each indicator. We interviewed relevant staff, reviewed site data capture and reporting methods, checked calculations and assessed the local internal quality and assurance processes.
- An analytical review of the data from all sites and a check on the completeness and accuracy of the corporate data consolidation.

- Year-end assurance activities at corporate level including the results of internal review procedures and the accuracy of the consolidation of the data for the selected indicators from the site data.

The limitations of our engagement

The reliability of the assured data is subject to inherent uncertainties, given the available methods for determining, calculating or estimating the underlying information. It is important to understand our assurance conclusions in this context.



Jennifer Iansen-Rogers
Head of Corporate Assurance Services
27 February 2018

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