



## United Nations Global Compact

### Communication on Progress Covering Calendar Year 2013

9<sup>th</sup> April 2014

To our Stakeholders:

I am pleased to confirm that once again this year AMG Advanced Metallurgical Group N.V. ("AMG") reaffirms its support of the Ten Principles of the United Nations Global Compact (UNGC) in the areas of Human Rights, Labor, Environment and Anti-Corruption. Our Code of Business Conduct and Policy on Human Rights, both of which are available on our website, set out our commitments to act ethically and uphold the ten UNGC principles in all of our business activities.

In this annual Communication on Progress, we describe our actions to continually improve the integration of the Global Compact and its principles into our business strategy, culture and daily operations. We also commit to share this information with our stakeholders using our primary channels of communication, primarily the AMG website [www.amg-nv.com](http://www.amg-nv.com).

Sincerely yours,

A handwritten signature in blue ink, appearing to read 'Heinz C. Schimmelbusch', is positioned above the printed name.

Dr. Heinz C. Schimmelbusch  
Chairman of the Board and Chief Executive Officer

## HUMAN RIGHTS

- Principle 1 - Businesses should support and respect the protection of internationally proclaimed human rights

AMG Advanced Metallurgical Group continues to explicitly support the United Nations' Universal Declaration of Human Rights. Our commitment in this area began in 2009 with the publication of our Code of Business Conduct and was augmented in 2011 with the publication of our Policy on Human Rights. Both of these documents can be found in the Corporate Governance section of the AMG website, and the Human Rights Policy is shown below:



### Policy on Human Rights

AMG Advanced Metallurgical Group N.V. is a global company operating in a global market. We rely on our employees to implement our ethical values to ensure our business is conducted in a way that values human rights. We formally support the United Nations Global Compact including its labor, environmental, anti-corruption and human rights aspects. With respect to human rights:

*AMG supports and respects the protection of internationally proclaimed human rights and will work to make sure it is not complicit in human rights abuses.*

The key principles of the AMG Policy on Human Rights are driven by internationally accepted norms and national laws and are:

- **Children and Young Workers.** AMG does not employ children or support the use of child labor. We will support the creation of educational programs for young people including apprenticeships combined with formal education.
- **Equality of Opportunity.** AMG has zero tolerance for any kind of discrimination or harassment. We embrace cultural differences in our workforce. We will attract, develop, promote and retain the best employees based solely on merit and ability.
- **Freedom of Engagement.** All AMG employees have chosen to work for the company and AMG does not engage in forced labor or compulsory hiring practices.
- **Compensation.** AMG will compensate its employees through wages and benefits to ensure it meets or exceeds legal minimums and is in full compliance with all applicable laws and will be competitive to retain employees.
- **Freedom of Association.** AMG upholds the freedom of association and the right to collective bargaining.
- **Relationships with Communities.** AMG respects the customs, values and cultures of the local communities in which we operate including communities indigenous to those areas, taking into account their concerns and needs.

Within our company our human rights principles are enacted through the provision of safe and healthy working conditions in a non-discriminatory environment. We will continuously support our human rights standards by living our values in our interactions with local and national governments, and the communities in which we operate and wherever possible endeavor to extend our values and principles to our suppliers and contractors.

These human rights principle are universal to AMG, applied in everything we do, and are implemented irrespective of the developed or developing status of the countries in which we operate. This policy provides additional details to those commitments made in our Code of Business Conduct and applies to all AMG Advanced Metallurgical Group N.V wholly and majority owned facilities and shall be communicated annually to all employees.

A handwritten signature in blue ink, appearing to read 'Heinz C. Schimmelbusch'.

Dr. Heinz C. Schimmelbusch  
Chairman of the Management Board and Chief Executive Officer

The commitments made in these publications are monitored by a network of Compliance Officers under the oversight of a Chief Compliance Officer – a new role created within AMG – and their team. Further this team is continually supported by senior management across the subsidiary companies. Regular training is provided to support this group. This team has developed Compliance training for AMG staff at all levels in the organization. In 2013 there were no reported incidents of breaches of the AMG Code of Business Conduct, and in particular none related to human rights abuses.

- Principle 2 - Make sure businesses are not complicit in human rights abuses

The aim of the presence of an AMG business unit in a community is to strengthen and be part of the community, fostering sound relationships and avoiding conflicts. We respect the dignity and rights of our employees, their families and the communities in which we operate and others who might be affected by our operations and actively involving ourselves and supporting those communities.

AMG sustains an expanding network of Code of Business Conduct Compliance Officers based in the countries and major sites where AMG companies are operating. Additionally, AMG has had a Whistle blowing policy in force since 2009 allowing employees to come forward on a confidential basis to report issues. The Whistleblowing policy can be accessed through the Governance section of the AMG website. In 2012 no reports of incidents have been filed through the Whistle blowing policy mechanism.

Further, in 2013 AMG developed and implemented its Supplier Conduct Charter, shown below. This is the start of a process to ensure the standards relating to Human Rights which AMG holds itself to, are expanded to our suppliers as well. In particular, this policy states that: “AMG’s suppliers should support and respect the protection of internationally proclaimed human rights and ensure they are not complicit in human rights abuses.”



## Supplier Conduct Charter

AMG Advanced Metallurgical Group N.V. is a global company operating in a global market. Our supplier– customer relationships are essential in building economic value, but are also important in promoting social and environmental best practices

Essential elements of our supplier-customer relationship will include specifications, price, quality, service level and technology. AMG will also take into account environmental and social impact in assessing supplier quality and will preferentially deal with partners who are able to demonstrate commitment in the following areas, based upon the relevant principles of AMG's Code of Business Conduct:

- **Human Rights**
  - AMG's suppliers should:
    - Support and respect the protection of internationally proclaimed human rights and ensure they are not complicit in human rights abuses.
- **Labor**
  - AMG's suppliers should:
    - Uphold the freedom of association and the effective recognition of the right to collective bargaining; support the elimination of all forms of forced and compulsory labor; support the effective abolition of child labor; and support the elimination of discrimination in respect of employment and occupation.
    - Have programs in place to protect the health and safety of your staff, subcontractors and local residents, preferably through a documented safety management system.
- **Environment**
  - AMG's suppliers should:
    - Support a precautionary approach to environmental challenges and act to promote greater environmental responsibility.
    - Comply with all local environmental laws and regulations in the locations in which you operate and hold all required permits.
    - Have procedures in place to prevent environmental incidents and response plans to mitigate the effects should such an incident occur, preferably through a documented environmental management system
- **Anti-Corruption**
  - AMG's suppliers should:
    - Not tolerate corruption in any of its forms, including extortion and bribery.
    - Comply with laws and regulations in the locations in which they operate.
    - Uphold high standards of personal and business ethics.

AMG will engage with its suppliers in a respectful and ethical way, encompassing fairness and honesty and will select suppliers on the basis of specifications, price, quality, service level and technology, but also Human Rights, Labor, Environment and Anti-Corruption approach, as outlined in this charter.

AMG Suppliers are expected to respond promptly to inquiries from AMG procurement professionals with respect to compliance with these principles and accept that they may be required to perform self-assessment questionnaires.

### LABOR

- Principle 3 - Businesses should uphold freedom of association & effective recognition of the right to collective bargaining

AMG respects the freedom of its individual employees to join, or choose not to join, legally authorized association or organizations. AMG continues to use the Global Reporting Initiative

(GRI) indicator LA4 (Percentage of Employees Covered by Collective Bargaining Agreements) to monitor this principle. In our 2013 Annual Report we state:

*“AMG respects the freedom of its individual employees and their rights to join, or to choose not to join, unions. Across the Company, 2,098 AMG employees (68%) were covered by collective bargaining agreements. 72% of AMG Processing and 86% of AMG Mining employees are covered by such arrangements. AMG Engineering, which includes a higher proportion of professional salaried staff, has 45% of its employees covered by collective bargaining agreements. There were no strikes or lockouts reported at any of AMG’s facilities in 2013.”*

Additionally, we utilize indicator HR5 (Operations Identified in which the right to exercise freedom of association or collective bargaining may be at significant risk, and actions taken to support these rights). In the 2013 Annual Report we state:

*“Each AMG site is assessed during site visits and internal audits to identify if there is the possibility of freedom of association or collective bargaining being put at risk because of political or business factors. In 2013, it was found that no sites were at risk, with the exception of China, where the formation of unions remains restricted.”*

Further, with the development and implementation of our Supplier Conduct Charter we begin to hold our suppliers to the same standard stating: *“AMG’s suppliers should uphold the freedom of association and the effective recognition of the right to collective bargaining; support the elimination of all forms of forced and compulsory labor”*

- Principle 4 - The elimination of all forms of forced and compulsory labor

All AMG employees work for the company as a result of need or want. Nobody is forced to work for AMG and we prohibit the use of any forced labor, including slavery, servitude, or prison labor. This is reflected in the widespread presence of unionized labor across AMG. Currently most of the locations and environments AMG facilities are present in are stable and advanced democracies, assisting in ensuring human rights abuses of this type are not occurring. Again, our Supplier Conduct Charter adopted in 2013 introduces our commitment to this principal to our suppliers stating: *“AMG’s suppliers should support the elimination of all forms of forced and compulsory labor.”*

- Principle 5 - The effective abolition of child labor

As stated in our Human Rights Policy, AMG does not employ children and strongly rejects the use of child labor, and expects our suppliers to do the same through the requirements of our Supplier Conduct Charter. AMG does actively support the creation of educational programs for young people including apprenticeships combined with formal education, particularly in the areas of science and engineering. In our annual report we utilize the Global Reporting Initiative indicator HR6 “Operations identified as having significant risk for incidents of child labor, and measure taken to contribute to the elimination of child labor”. In its most recent annual report AMG reported that it has reviewed 36 of its operating sites across the world to ensure that they

are not at risk for employing child labor or exposing young workers to hazards. It was found that no sites posed a risk at this time. AMG is at the root of the supply chain for several of its products and is proud to be able to supply metals such as Tantalum and Tin, commodities historically fraught with human rights abuses, from mining operations with strong ethical practices and not utilizing child labor. In particular our Tantalum supply chain in Brazil is certified as Conflict Free by the Electronics Industry Citizenship Coalition (EICC).

- Principle 6 - Eliminate discrimination in respect of employment and occupation

AMG's Code of Business Conduct states that the Company views as unacceptable any form of harassment or unfair or unlawful discrimination based on race, age, gender, color, sexual orientation, disability or national origin, whether by employees, temporary employees, managers, customers, vendors or AMG companies' visitors.

At year-end 2013, AMG Processing had a workforce of 1,301, AMG Engineering had 879 employees, and AMG Mining had 854 employees. For those facilities reporting here, including corporate staff (39), the total AMG workforce was 3,073 (facilities not yet covered in this section employ a further 20 people). Geographically, these were located in Asia (10%), Europe (57%), North America (17%) and South America (16%). A further 327 directly supervised contract workers were employed at AMG sites. AMG assesses the diversity of its workforce in terms of gender and age. The multinational, and therefore multicultural, nature of the business means that ethnic diversity is significant, but because of the difficulty in defining minority employees in such an environment, the Company does not collect data on this aspect. Of the total employees, 19% are female; 19% are under 30 years of age, 53% between 30 and 50, and 28% over 50. The Management Board is 66% male and 33% female. The Supervisory Board is 87% male and 13% female. One Supervisory Board member is aged 30-50 while seven are over 50.

The commitments made in 2012 have made progress with increased gender diversity in the management board (moving from all male to 33% female) and the supervisory board (moving from all male to 13% female).

However, AMG is continuing to work to improve the diversity of its Boards. On page 40 of our 2013 Annual Report we note:

*"Gender Diversity:*

*The Supervisory Board recognizes the importance of a diverse composition of the Supervisory Board and the Management Board in terms of gender. The Supervisory Board is pleased that in 2013, Ms. Ute Wolf has joined the Supervisory Board and that Ms. Amy Ard has been appointed as Chief Financial Officer. New Dutch legislation that became effective on January 1, 2013, requires the Company to pursue a policy of having at least 30% of the seats on the Supervisory Board and the Management Board be held by men and at least 30% of the seats be held by women. The Company will continue to take this allocation of seats into account in connection with the following actions: (1) the appointment or nomination for the appointment of the Supervisory Board and the Management Board and (2) drafting the criteria for the size and*

*composition of the Supervisory Board and the Management Board. At this moment, the Company does comply with article 2:166 Dutch Civil Code as regards the composition of the Management Board, and does not fully comply with this article as regards the composition of the Supervisory Board where currently only 12.5% of the Supervisory Board seats are held by women which will increase to 22% once the general meeting of shareholders approves the nomination of Ms. Ceccarelli. The Supervisory Board will continue to look for suitable female candidates for the Supervisory Board.”*

## ENVIRONMENT

- Principle 7 - Businesses should support a precautionary approach to environmental challenges

All AMG facilities have a strong awareness and knowledge of their environmental impact and the company utilizes the Global Reporting Initiative (GRI) G3 guidelines to measure and report environmental impacts in a number of areas including raw material use, energy consumption, greenhouse gas generation, water use and discharge and waste generation and disposal. These are reported annually to our stakeholders in the Company annual report. Many of AMG's activities focus on technologies to address fossil fuel efficiencies and reduce greenhouse gas generation, where we believe a precautionary approach is vital given the potential adverse effects. Many of the technologies that AMG produces, which we refer to as “enabling technologies” contribute to significant reductions in greenhouse gas emissions in the transportation and buildings sectors. The relevant section from the Annual Report to Shareholders showing how AMG measures its environmental impact is reproduced at the end of this Communication on Progress (COP).

- Principle 8 - Undertake initiatives to promote greater environmental responsibility

Several of the larger AMG manufacturing facilities either have ISO 14001 environmental management system certification in place. Formalized management systems are seen as a key tool to maintaining focus on environmental responsibility. Additionally AMG has invested in projects including hydroelectric generation, solar generation and heat recovery systems. It is also promoting energy management initiatives to improve efficiencies. AMG has also been a key player in the disassembly of the US and Russian nuclear arsenals under international treaties through the design of plants in the USA to convert weapons grade nuclear materials into materials for peaceful nuclear fuel generating applications with associated social and environmental benefits to society as a whole. The relevant section from the Annual Report to Shareholders showing how AMG measures its environmental impact is reproduced at the end of this Communication on Progress (COP).

- Principle 9 - Encourage the development and diffusion of environmentally friendly technologies

AMG's businesses continue to focus on environmentally friendly technologies. We have expanded our supply chain for lightweight aluminum and titanium alloying materials through the integration of AMG Aluminum, further strengthening our commitment to these technologies. We have also invested heavily in our plant in Cambridge, Ohio that produces the steel strengthening alloy ferrovanadium from byproducts of the oil refining and power generation industries, eliminating landfill. This technology reduces energy in the manufacturing process and by strengthening steel, significantly reduces the tonnages required in end user applications. AMG is also actively supporting the automotive industry as it moves to more fuel efficient turbo charged, low displacement engines, through applications of materials such as gamma titanium aluminide and heat treatment of fast moving, high temperature parts such as turbo chargers and piston heads. Similar applications have been seen in next generation aviation jet engines which contribute to the fuel efficiency of next generation aircraft and where AMG's ceramic coating technologies further enable fuel efficiency savings. AMG continues to believe that nuclear power is required as part of the short and medium term solution to anthropogenic CO2 emissions and continue to supply products and engineering expertise to support this sector.

## ANTI CORRUPTION

- Principle 10 - Businesses should work against corruption in all its forms, including extortion and bribery.

In 2009 AMG introduced (and published) its Code of Business Conduct to all of its staff which sets out guiding principles in its ethics and business conduct as adopted and approved by the Company's Management Board and Supervisory Board. The Code of Business Conduct discusses in detail the ethical conduct and business practices which AMG expects from all employees, covering areas like conflicts of interest, anti-bribery, insider dealing, policies on corporate entertainment and acceptance of gifts, and the integrity of our record keeping and reporting. Additionally in 2012, AMG published its stand-alone policy on Anti-bribery and Anti-corruption. This is available under the Corporate Governance section of the AMG-NV website. Specific training programs for staff, using web based training, and compliance officers, via face to face training, has been carried out and further training will take place in 2014.

In 2013 AMG further promoted these values throughout the Company with a multi lingual poster campaign to raise awareness of the Code of Business Conduct and various ethically based programs.

we aim to create **value**  
we **respect** people  
we act with **integrity**

AMG's Code of Business Conduct and its supporting policies set out AMG's guiding principles in its ethics and business conduct and applies to all directors, officers and employees of AMG and its group companies worldwide regardless of their position, nationality, gender, race or religion.

At work you may face situations where interpretation or further guidance is needed. When this happens consult the Code of Business Conduct and its supporting policies or discuss the situation with your manager. You can also discuss with your local Compliance Officer or contact AMG's Legal Department.

[www.amg-nr.com](http://www.amg-nr.com)



We welcome comments on our Code of Business Conduct and supporting policies.

Michael Witzel, Chief Compliance Officer  
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1077 ZX Amsterdam, the Netherlands  
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Tel: + 31 20 7142140  
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Notre but est de  
créer de la **valeur**  
Nous **respectons**  
chaque personne  
Nous agissons  
avec **intégrité**

Le Code de conduite du travail d'AMG et ses politiques associées décrivent les lignes directrices relatives à l'éthique et à la conduite des affaires. Il s'applique à chaque dirigeant, administrateur et employé d'AMG et de ses filiales internationales, indépendamment de sa position, de sa nationalité, de son sexe, de sa race ou de sa religion.

Au travail, vous pouvez être confronté à des situations dans lesquelles un accompagnement ou une aide à l'interprétation pourraient être nécessaires. Lorsque cela arrive, consultez le Code de conduite des affaires et ses politiques associées ou discutez de la situation avec votre responsable hiérarchique. Vous pouvez également discuter avec le Responsable local Ethique et Conformité ou contacter le service juridique d'AMG.

[www.amg-nr.com](http://www.amg-nr.com)



Nous nous félicitons de commentaires sur notre Code de conduite des affaires et des politiques de soutien.

Michael Witzel, Responsable Ethique et Conformité  
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# ATTACHMENT

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## SUSTAINABLE DEVELOPMENT SECTION FROM THE 2013 ANNUAL REPORT TO SHAREHOLDERS

# Sustainable Development

SITE NAME	LOCATION	COUNTRY	DIVISION
AMG Headquarters	Amsterdam	Netherlands	AMG Corporate
AMG USA Headquarters	Pennsylvania	USA	AMG Corporate
ALD IMP	Berlin	Germany	AMG Engineering
AMG Intellifast	Speyer	Germany	AMG Engineering
ALD USA	Connecticut	USA	AMG Engineering
ALD TIV	Grenoble	France	AMG Engineering
ALD UK	Guildford	UK	AMG Engineering
ALD FNAG	Hanau	Germany	AMG Engineering
ALD Vacuum Technologies <sup>1</sup>	Hanau	Germany	AMG Engineering
ALD Vacuheat <sup>1</sup>	Limbach	Germany	AMG Engineering
ALD TT USA <sup>1</sup>	Michigan	USA	AMG Engineering
ALD Dynatech	Mumbai	India	AMG Engineering
ALD TT Mexico <sup>1</sup>	Ramos Arizpe	Mexico	AMG Engineering
ALD Japan	Shinjuku-ku	Japan	AMG Engineering
ALD Singapore	Singapore	Singapore	AMG Engineering
ALD C&K	Suzhou	China	AMG Engineering
AMG Mining Edelgraphit	Bonn	Germany	AMG Mining
AMG Antimony	Chauny	France	AMG Mining
Bogala Graphite Lanka <sup>1</sup>	Colombo	Sri Lanka	AMG Mining
AMG Mining <sup>1</sup>	Kropfmuhl	Germany	AMG Mining
AMG Antimony	Lucette	France	AMG Mining
AMG Mineração <sup>1</sup>	Nazareno	Brazil	AMG Mining
AMG Silicon <sup>1</sup>	Pocking	Germany	AMG Mining
AMG Graphite	Qingdao	China	AMG Mining
AMG Graphite Tyn	Tyn	Czech Republic	AMG Mining
AMG Alpoco	Anglesey	UK	AMG Processing
AMG Titanium Alloys and Coatings <sup>1</sup>	Brand Erbisdorf	Germany	AMG Processing
AMG Aluminum	Jiaxing	China	AMG Processing
AMG Aluminum	Kentucky	USA	AMG Processing
AMG Alpoco	Minworth	UK	AMG Processing
AMG Titanium Alloys and Coatings <sup>1</sup>	Nürnberg	Germany	AMG Processing
AMG Vanadium <sup>1</sup>	Ohio	USA	AMG Processing
AMG Aluminum	Pennsylvania	USA	AMG Processing
AMG Superalloys and AMG Aluminum <sup>1</sup>	Rotherham	UK	AMG Processing
AMG Superalloys <sup>1</sup>	Sao Joao del Rei	Brazil	AMG Processing
AMG Aluminum	Washington	USA	AMG Processing

## Notes:

The chart indicates which facilities were included in the scope of the sustainable development data. Only data from these facilities is included in this section which may therefore show inconsistency with other sections of this annual report covering all facilities.

<sup>1</sup>Remote externally audited data 2013.

## Report Boundaries

This section provides our seventh annual sustainability report, which evaluates and compares AMG's social and environmental performance to previous years. The reporting boundaries have not changed significantly since 2012; three additional operational sites are included while one office location has been closed. The 36 locations reporting in 2013 (in which AMG has a 51% or greater stake holding) are detailed in the table on page 50. They include mining and manufacturing operations and sales and administrative offices in 13 countries across 4 continents. The report considers the three segments, AMG Processing, AMG Engineering, and AMG Mining, and where possible, 2012 data have been restated in this form to allow comparison. AMG continues to assess the boundaries of this report based on the corporate ownership structure. All locations report their performance at the end of the fourth quarter, and no forecast data is used.

## Scope of This Report

AMG utilizes the Global Reporting Initiative (GRI) G3, Mining and Metals Sector Supplement aspects. The GRI is a network-based organization that publishes the world's leading sustainability reporting framework. Additionally, AMG has applied GRI's principal of materiality to the report, which states: "Information in this report should cover issues and indicators that would substantively influence the decisions of stakeholders using this report."

AMG utilizes a standard template, which sites use to report their data in order to ensure consistency in the interpretation of definitions of the key indicators. The report is independently verified by Conestoga-Rovers & Associates. The environmental key performance data for the three segments are summarized in the table on page 57.

**AMG Advanced Metallurgical Group N.V.**  
**www.amg-nv.com**  
**Contact: global.sustainability@amg-nv.com**

## AMG People

GRI INDICATORS LA 1, LA 4, LA 6, LA 7, LA 10, LA 13 AND MM 4

At year-end 2013, AMG Processing had a workforce of 1,301, AMG Engineering had 879 employees, and AMG Mining had 854 employees. For those facilities reporting here, including corporate staff (39), the total AMG workforce was 3,073 (facilities not yet covered in this section employ a further

20 people). Geographically, these were located in Asia (10%), Europe (57%), North America (17%) and South America (16%).

A further 327 directly supervised contract workers were employed at AMG sites. AMG assesses the diversity of its workforce in terms of gender and age. The multinational, and therefore multicultural, nature of the business means that ethnic diversity is significant, but because of the difficulty in defining minority employees in such an environment, the Company does not collect data on this aspect. Of the total employees, 19% are female; 19% are under 30 years of age, 53% between 30 and 50, and 28% over 50. The Management Board is 66% male and 33% female. The Supervisory Board is 87% male and 13% female. One Supervisory Board member is aged 30-50 while seven are over 50.

AMG respects the freedom of its individual employees and their rights to join, or to choose not to join, unions. Across the Company, 2,098 AMG employees (68%) were covered by collective bargaining agreements. 72% of AMG Processing and 86% of AMG Mining employees are covered by such arrangements. AMG Engineering, which includes a higher proportion of professional salaried staff, has 45% of its employees covered by collective bargaining agreements. There were no strikes or lockouts reported at any of AMG's facilities in 2013.



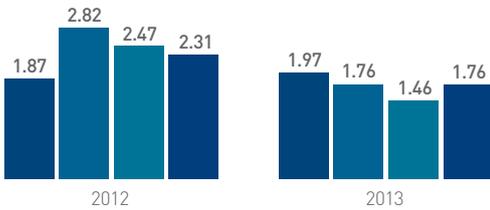
## ZERO ACCIDENTS IS OUR GOAL

AMG is pleased to report that no fatal incidents occurred at any of our sites in 2013. Since our first Annual Report on safety in 2008, our safety performance has improved significantly. Our medium term goal is zero lost-time incidents – we cannot accept that any incident is inevitable. In 2013, we saw our best safety performance yet, extending the improving trend. For AMG as a whole, the Lost Time Incident Rate<sup>1</sup> dropped from 2.31 in 2012 to 1.76. However, the incident severity<sup>2</sup> was marginally higher at 0.21 compared 0.20 in 2012. Of the 36 locations included in this report, 17 achieved zero lost time incidents in 2013. No specific occupational diseases were reported in 2013. The average absenteeism rate across AMG was 3.0%. The Company continues towards its ultimate goal of zero harm to any employee. Ten sites are OHSAS 18001 certified, while formal health and safety committees with representatives from all levels of the organization and which lead and are intimately involved in decisions regarding safety,

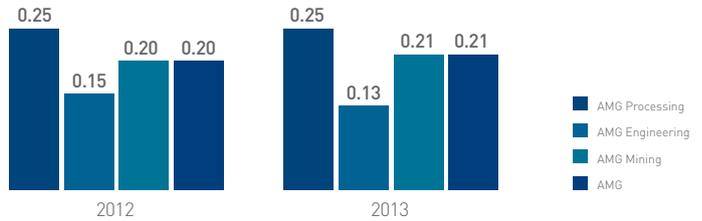
<sup>1</sup> Lost time incident frequency rate equals the number of lost time incidents multiplied by 200,000 divided by the total hours worked. Lost time injury was defined using local regulations.

<sup>2</sup> Incident severity is defined as the number of scheduled work days lost as a result of disabling injuries per thousand worker hours of exposure. In some locations calendar days are counted by local regulators and this data is used here if scheduled work days are unavailable.

## Lost Time Incident Rate



## Incident Severity



are in place at every major production facility and many of the smaller facilities. In 2013, 85% of the AMG workforce was represented in these committees.

AMG also collects data on the hours we invest in our people to develop their skills, categorized into management; professional, technical, sales and administration; and production and maintenance employees. The categories of training tracked included technical and professional development, quality, anti-corruption policies, human rights policies and health and safety.

This is important to our safety, environmental and ethics programs, and in maintaining our technical competitive advantage. Training data on corporate employees is not fully available. In 2013, the training provided was: management (159 employees trained, averaging 16 hours per person), professional, technical, sales and administration (871 employees trained, averaging 18 hours) and Production and Maintenance (1,620 employees trained, averaging 27 hours). Across all the reporting sites, AMG employees received an average of 17 hours of training time in 2013 (approximately 1% of total hours worked).

## Human Rights and Ethics

### GRI INDICATORS HR 3, HR 5, HR 6 AND SO 3

AMG remains fully committed to the protection of internationally proclaimed human rights and works to make sure it is not complicit in human rights abuses. Each AMG site is assessed during site visits and internal audits to identify if there is the possibility of freedom of association or collective bargaining being put at risk because of political or business factors. In 2013, it was found that no sites were at risk, with the exception of China, where the formation of unions remains restricted. Similarly, the Company has reviewed sites to ensure that they are not at risk for employing child labor or exposing young workers to hazards. It was found that no sites posed a risk at this time. Our policy on human rights is included in the Company Code of Business Conduct and Ethics, which was revised and updated in 2012, and detailed in the company's human rights policy, both available on the AMG website.

Although significant human rights and ethics training was not performed in 2013, with 17% of employees given refresher training in ethical businesses practices, including some human rights-based materials, preparations were made for significant training in the first half of 2014. Compliance officers at the major sites monitor and implement the Code of Business Conduct and Ethics.

## Resource Efficiency and Recycling

### GRI INDICATORS EN 1 AND EN 2

The use of resources varies between AMG business units ranging from those that locally mine or purchase primary raw materials to produce metals, alloys, and inorganic chemicals through those which produce metals and alloys from secondary, recycled resources, to those which provide technology and engineering services. AMG resource usage data comprises raw materials, associated process materials, semi manufactured goods and parts and packaging, by weight.

AMG Engineering provides predominantly furnace technology and engineering services, including furnace assembly operations and heat treatment services. The segment utilizes limited amounts of resources in these activities, mainly complex component parts for furnaces, which are routinely measured in units rather than by mass. Therefore, unlike the chemicals and alloys business units, only limited data is available on resource mass. In 2013, AMG Engineering reported using 3,722 mt of resources, all of which were classified as primary.

AMG Processing uses a much more diverse range of resources including power plant wastes and spent refinery catalysts for the production of vanadium alloys and metal salts for aluminum alloy production. The segment uses recycled iron, steel, aluminum and titanium in processes when possible. The segment utilized 174,000 mt of resources in 2013, of which 26,000 mt (15%) were secondary or recycled materials.

AMG Mining uses non-renewable resources such as graphite rich ores, for the manufacture of natural graphite, and quartz, in its silicon metal operations. In 2013, the primary utilization of resources was by AMG Mineração (830,000 mt) and AMG Silicon (190,000 mt) with the remaining AMG Mining sites using 54,000 mt.

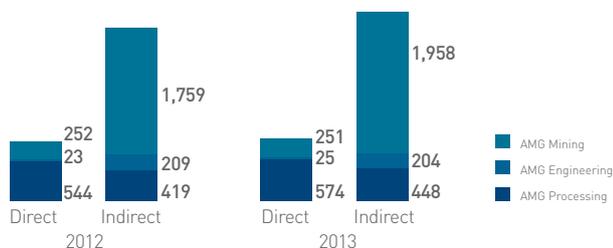
## Energy Consumption

### GRI INDICATORS EN 3 AND EN 4

Energy remains a major area of focus for AMG for both environmental and economic reasons. In particular, high temperature metallurgical processes and mining operations utilized in AMG Processing and AMG Mining are energy intensive. The two most significant energy carriers are electricity and natural gas although other fuels and energy sources are captured in the data discussed here.<sup>3</sup>

<sup>3</sup> Indirect energy consumption does not include the energy consumed by electricity producers to generate the electricity or transmission losses.

## Energy Usage (TJ)



The reported energy usage for AMG Processing is almost unchanged in 2013 compared to 2012, decreasing from 963 terajoules (TJ) in 2012 to 962 TJ in 2013. Direct energy usage was 574 TJ and indirect 448 TJ.

The energy usage for AMG Mining was 2210 TJ, split between direct (251 TJ) and indirect (1,958 TJ). The largest user, accounting for 80% of this usage was the silicon metal production in Germany – an inherently energy intensive process.

The energy used by low-energy heat treatment processes utilized by AMG Engineering remains low in comparison. The segment used 229 TJ, almost unchanged from 2012 (231 TJ). Indirect energy, in the form of electricity, accounted for 204 TJ, while direct energy use, primarily natural gas, was 25 TJ.

Across AMG, the split between renewable and non-renewable indirect energy sources is difficult to determine since utilities do not generally publish this information (with some exceptions; e.g. CEMIG in Brazil now produces this data). However, AMG does generate its own renewable energy. In 2013, AMG's upgraded hydroelectric generating facility near São João del Rei, Brazil operated for the full year and generated 48,500 GJ (13,500 MWh). This supplied AMG's local requirements at its São João del Rei, Brazil plant and provided a surplus that was fed back into the power grid. Additionally, AMG Vanadium's recently installed solar power system generated 921 GJ (255 MWh) in 2013 and the AMG Mineração mine now utilizes biodiesel in its truck fleet, contributing 140,000 GJ of renewable energy.

## Water Consumption

### GRI INDICATOR EN 8

Water is essential to many manufacturing processes and is used by AMG primarily for non-contact, evaporative or single-pass cooling purposes, although a small number of AMG facilities do use wet chemical processes for the production of metal oxides and other chemicals. In addition, mining operations can utilize water from mine dewatering or for ore processing. Water utilized for cooling, process and sanitary usage is reported by AMG facilities. Reported water use for AMG Processing rose to 718,000 cubic meters in 2013, primarily because of increased production of vanadium. AMG Engineering was similar to 2012 at 80,000 cubic meters.

AMG Mining has its largest water use at the mine sites in Germany and Sri Lanka, and the silicon metal production plant in Germany. Together these sites used 1.3 million cubic

meters of water. Additionally, the mine in Nazareno, Brazil, used 6.0 million cubic meters in 2013, a decrease from prior years, primarily because of improved measurement. Full data is provided in the table on page 57.

## Biodiversity

### GRI INDICATOR EN 11

Of the 36 locations reporting for 2013, four reported land areas on or adjacent to their property, which had high biodiversity value, sensitive habitats or were protected. These areas are: river frontage in Hanau, Germany, native forest in São João del Rei, Brazil, river frontage and setback areas in Nazareno, Brazil and wetlands in Ohio, United States. AMG remains very aware of the need to be responsible stewards of these important areas.

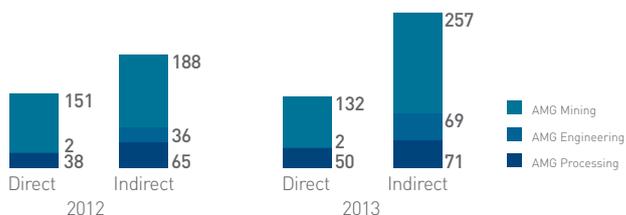
## Climate Change

### GRI INDICATOR EN 16

AMG facilities utilize processes that are associated with both direct and indirect greenhouse gas (GHG) emissions, and both types are reported here. Electricity used for the generation of heat for metallurgical processing has been, and remains, the most significant source of GHG emissions for AMG. This electricity use gives rise to indirect GHG emissions of CO<sub>2</sub> equivalent (CO<sub>2</sub>e), which are dependent on the nature of its generation. Whenever possible, emissions have been calculated using up-to-date emission factors available from the electricity supplier, the local environmental agency, or the GHG protocol. Indirect emissions are defined as those emissions generated by sources outside of AMG's control, but where AMG ultimately uses the energy. Direct GHG emissions result primarily from the combustion of carbon-containing materials often as part of the metallurgical process, such as using coke as a reductant, but also for the generation of heat, such as burning natural gas in a boiler. Other GHGs occurring from processes other than combustion, such as hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride, are minimal for the AMG business units, but are included if relevant.

AMG Processing GHG emissions rose 17% from 103,000 mt of CO<sub>2</sub>e in 2012, to 121,000 mt in 2013. 57% of these emissions are attributed to indirect sources and 41% are attributed to direct sources.

AMG Engineering GHG emissions in 2013 were 70,000 mt, an increase from 38,000 mt in 2012. This increase was attributable to greater throughput at the Michigan, USA facility. 95% of these emissions are indirect and associated with electricity usage.



AMG Mining emissions remain dominated by the silicon metal production activities. Of the 389,000 mt of CO<sub>2</sub>e emissions in 2013, 353,000 mt are attributable to silicon metal manufacture (approximately 5.5 kg CO<sub>2</sub>e per kg silicon metal produced). This activity also dominates AMG’s overall GHG emissions, accounting for 61% of total group emissions. Further, changes in supply mix resulted in higher emission factors for this electricity, accounting for a significant portion of the increased emissions.

AMG provides a complex mix of products and services, and it has become clear that year-on-year comparisons are difficult as product mix varies. GHG intensity is defined on the basis of revenue rather than, for example, mt of product. Normalized to a revenue basis, AMG Processing emitted 121,000 mt, with revenue of \$568.6 million, equivalent to 212 mt CO<sub>2</sub>e per million \$ revenue. AMG Engineering generated 70,500 mt CO<sub>2</sub>e, \$260.2 million in revenue, or 270 mt CO<sub>2</sub>e per million \$ revenue, while AMG Mining is the most carbon-intensive segment with 389,000 mt of CO<sub>2</sub>e and \$329.6 million in revenue, equivalent to 1,180 mt CO<sub>2</sub>e per million \$ revenue. This wide range reflects the diversity of AMG but also guides focus on reduction opportunities. It must also be noted that because of the new business unit structure, year on year comparison is not possible. For AMG as a whole in 2013, GHG intensity was 501 mt per million \$ revenue.

**Emissions to Air**

**GRI INDICATORS EN 19 AND EN 20**

The emissions of ozone-depleting substances remain de minimis for AMG. AMG Engineering also has de minimis air emissions for other pollutants, resulting from only small sources such as heating and hot water boilers. AMG’s production facilities do have some other air emissions, including SO<sub>x</sub> (661 mt), NO<sub>x</sub> (56 mt) and particulate materials (18 mt). Data is only available for regulated sources where measurements have been made. AMG Mining’s largest emissions come mainly from the silicon metal production activities. In total AMG Mining’s facilities emitted SO<sub>x</sub> (356 mt), NO<sub>x</sub> (723 mt), and particulates (11 mt).

**Emissions to Water and Spills**

**GRI INDICATORS EN 21 AND EN 23**

AMG facilities continue to maintain records of the volume of aqueous effluents, including process water and non-sanitary sewer releases, discharged to local water courses. Clean water (typically freshwater used for cooling purposes that has not been affected in the process) is included in the figures given

below. Chemical analysis of the effluent is utilized to determine the total mass of primary constituents of the water emissions.

In 2013, the total water disposed to water courses by AMG Processing totaled 411,000 cubic meters compared to 390,000 cubic meters in 2012. This slight increase is attributed to variations in production volumes.

Although most of AMG Processing’s water is used for cooling purposes and therefore produces clean water discharges, some of the wet chemical processes generate aqueous waste streams. For the five production sites reporting industrial process water disposal, the major constituents were metals (1,085 kg), fluoride (182 kg), sulfate (1,488 mt) and total suspended solids (46 mt).

AMG Engineering utilizes minimal water for non-contact, closed-cycle cooling purposes, and the discharges are therefore clean water and not considered material to this report. The only significant water discharge of this type takes place at the site in Michigan, USA (7,750 cubic meters in 2013).

AMG Mining (excluding the mine in Brazil) discharged 898,000 cubic meters in 2013. This included cooling water used by the silicon metal furnaces and mine water from dewatering pumps. In several locations, mine water is utilized for process water before final discharge. Constituents from processing included metals (412 kg), sulfate (1767 mt), fluoride (3,770 kg) and suspended solids (7,000 kg).

Additionally, the 4.7 million cubic meters of water discharged to surface water from the mine site in Brazil contain suspended solids, although accurate data is not yet available.

In 2013, there were no significant spills (defined by GRI as one which would affect the Company’s financial statement as a result of the ensuing liability or is recorded as a spill) of tailings or other process materials at any AMG site.

**Waste Disposal**

**GRI INDICATOR EN 22**

Detailed information was collected in 2013 for waste streams generated by AMG, along with documentation of their recycle or disposal method. AMG continues to minimize waste streams by avoiding generation, increasing reuse and recycling and minimizing landfill disposal. Landfill is a last resort. Wastes as defined here encompass materials not purposefully produced for sale and with no commercial value.

The total landfill or incineration disposal for AMG Processing was 20,614 mt, an increase of 10% over 2013 (18,671 mt). This increase is primarily related to remediation projects, partially



offset by ongoing and increasing recycling efforts. 69% of these materials (14,172 mt) were non-hazardous, with the remaining 6,438 mt disposed to licensed hazardous waste landfills.

The waste produced by AMG Engineering is much different in composition, and much smaller in volume. Just 138 mt were disposed to landfill in 2013 (2012, 153 mt), composed mainly of general waste, contaminated oil and metals that could not readily be recycled.

AMG Mining disposed of 8,649 mt of waste in 2013, of which just 141 mt were hazardous waste. The graphite mine in Sri Lanka, the silicon metal manufacturing and graphite mine sites in Germany together generated 95% of this waste.

Overall, the Company disposed of 29,400 mt of waste to landfill or incineration in 2013, of which 22% was hazardous waste.

### Significant Fines for Non-Compliance with Environmental and Other Laws

#### GRI INDICATOR EN 28

No segment received any significant fine or equivalent penalty for non-compliance with environmental laws in 2013.

#### GRI Indicator S08

In 2013, AMG Engineering and AMG Processing did not receive any fines. Within AMG Mining, the mine in Nazareno, Brazil, was fined \$195,000 relating to labor issues in 2011.

### Product Responsibility

#### GRI INDICATOR MM 11

AMG continues its progress regarding its responsibilities under the REACH regulations in Europe, and completed its 2013 registrations for products with volumes greater than 100 mt. European operations are involved with Consortia developing the health, safety and environmental data required for these registrations and have taken on the role as lead registrant in several cases. Industry groups continue to focus on developing health and safety knowledge of their products as the regulatory framework grows and expands across the world. AMG units are involved in, among others, the Vanadium International Technical Committee and the International Antimony Association.

### GRI Contents

This section provides an overview of how AMG's Annual Report correlates with the GRI G3 guidelines for the voluntary reporting of sustainable development indices. The table below serves as a reference guide to the sections of the report where information about each item can be found. The GRI G3

guidelines facilitate measurement of economic, environmental, and social dimensions of company performance. Third-party verification has been conducted relative to determining consistency with the GRI reporting principles. For brevity, only the most pertinent data is included in this report. A detailed GRI content index can be found under the sustainable development section of the AMG website ([www.amg-nv.com](http://www.amg-nv.com)).

### United Nations Global Compact

AMG commits its support to the principles of the United Nations Global Compact. The Global Compact, which is overseen by the United Nations, is a strategic policy initiative for businesses that, like AMG, are committed to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labor, the environment and anti-corruption. In 2009, the AMG Management Board approved its commitment to the Global Compact and the intent of AMG to support the ten principles of the Global Compact. AMG will reaffirm its support and submit its second Communication on Progress in April 2014.

### Extractive Industries Transparency Initiative

AMG continues its support of the Extractive Industries Transparency Initiative (EITI, [www.eiti.org](http://www.eiti.org)), a global initiative to improve governance in resource-rich countries through the verification and full publication of Company payments and government revenues from oil, gas and mining. EITI works to build multi-stakeholder partnerships in developing countries in order to increase the accountability of governments. Over 30 countries have now committed to the EITI principles and criteria. As of today, AMG does not have any extractive operations in an EITI-implementing country, although it does have exploration activities in Mozambique.

### Global Reporting Initiative

AMG supports the GRI, and is an Organizational Stakeholder (OS). GRI is a network-based organization that has pioneered the development of the world's most widely used sustainability reporting framework and is committed to its continuous improvement and application worldwide. In order to ensure the highest degree of technical quality, credibility, and relevance, the reporting framework is developed through a consensus seeking process with participants drawn globally from business, civil society, labor and professional institutions.

This framework sets out the principles and indicators that organizations can use to measure and report their economic, environmental, and social performance. The cornerstone of

the framework is the Sustainability Reporting Guidelines. AMG utilizes the third version of the Guidelines, known as the G3 Guidelines, which were published in 2006. Other components of the framework include Sector Supplements (unique indicators for industry sectors) and National Annexes (unique country level information). AMG has utilized the Metals and Mining Sector Supplement 2010 as a guide in preparing this report. GRI has recently published a fourth-generation of guidelines, G4. As an OS in the GRI Program, AMG is monitoring the implementation of this revision and will modify its data collection processes to match, although this will take several reporting cycles. OSs put their name to the GRI mission, products and processes, and promote broadening participation around sustainability and transparency. The OSs provide a key basis for legitimacy to GRI and reinforce its common commitment as a network to change. Further information on AMG Sustainable Development and our commitments to these organizations, including our United Nations Global Compact Communication on Progress can be found on the AMG website ([www.amg-nv.com](http://www.amg-nv.com)).

## Environmental, Health, Safety and Social Reporting Statement of Assurance

### SCOPE, OBJECTIVES & RESPONSIBILITIES

AMG's environmental, health, safety and social performance reporting has been prepared by the management of AMG who are responsible for the collection and presentation of the information. Conestoga-Rovers & Associates (CRA) was retained by AMG to conduct an independent review and assurance of the information and data reported in the Sustainable Development section of this Report. The objective of the assurance process is to check the materiality of the issues included in the Report and the completeness of reporting. Any claims relating to financial information contained within the Report are excluded from the scope of this assurance process. CRA's responsibility in performing our assurance activities is to the management of AMG only and in accordance with the terms of reference agreed with them. CRA does not accept or assume any responsibility for any other purpose or to any other person or organization. Any reliance that any third party may place on the Report is entirely at its own risk.

### APPROACH AND LIMITATIONS

CRA's assurance engagement has been planned and performed in accordance with AMG's internal guidance and definitions for the reported indices. The assurance approach was developed to be consistent with the GRI G3 Guidelines and international standards for assurance appointments. Remote audits utilizing telephone and web based methods were carried out for 13

facilities (see table page 50) identified by AMG, representing approximately 36% of the total number of AMG facilities. Stakeholder engagement was not within the scope of the assurance activities.

## Conclusions/Recommendations

Based on the method and scope of work undertaken, and the information provided to CRA by AMG, the process undertaken by AMG provides a balanced representation of the issues concerning AMG's sustainability performance and is an appropriate presentation of AMG's environmental, safety, health and social performance in 2013. In our opinion, the processes for collecting and reporting sustainability-related data that AMG introduced in 2007 continue to be enhanced through better communication and awareness, and more consistent application of the environmental indices. Some challenges remain related to ensuring consistency in the approach related to various performance metrics and providing consistent and complete data in an efficient manner. It is recommended that AMG continue to focus on these challenges to improve reporting, but they do not materially affect the conclusions presented herein.

Julian Hayward, P. Eng.

Conestoga-Rovers & Associates

Ashley Valentine, P.E.

Conestoga-Rovers & Associates



AMG hydroelectric plant in Brazil

# Social and Environmental Key Performance Indicators and GRI Content Index

## SELECTED SOCIAL AND ENVIRONMENTAL KEY PERFORMANCE INDICATORS\*

GRI INDICATOR	DESCRIPTION	AMG PROCESSING		AMG ENGINEERING		AMG MINING		AMG
		2012	2013	2012	2013	2012	2013	2013
LA1	Total workforce	1,277	1,301	931	879	830	854	3073
LA4	Employees covered by collective bargaining agreements (%)	74	72	35	45	85	86	68
LA7	Accident rates (Total)	1.87	1.97	2.82	1.76	2.47	1.46	1.76
LA7	Accident severity rate (Total)	0.25	0.25	0.15	0.13	0.20	0.21	0.21
LA10	Average hours of training per year per person	26	25	17	14	12	15	17
EN2	Recycled raw materials (excluding mine) (%)	14	15	0	0	0.1	0.1	2.1
EN3	Direct energy consumption (TJ)	544	574	22	25	252	251	791
EN4	Indirect energy consumption (TJ)	419	448	209	204	1759	1958	2610
EN8	Water consumption—Manufacturing (cubic meters)	629,000	718,000	66,000	80,000	608,000	596,000	1,394,000
EN8	Water consumption—Mining (cubic meters)	NA	NA	NA	NA	7,657,000	6,676,000	6,676,000
EN16	CO <sub>2</sub> equivalent emissions (mt)	103,000	121,000	38,000	71,000	338,000	389,000	580,100
EN20	SO <sub>x</sub> emissions (mt)	606	661	0	0	335	356	1017
EN20	NO <sub>x</sub> emissions (mt)	127	56	0	0	683	723	779
EN20	Particulates discharged to air (mt)	18	18	0	0	38	11	28
EN21	Metals discharged (kg)	1,083	1,085	0	0	0	412	1,497
EN22	Hazardous waste (including recycled) (mt)	5,733	7,637	355	347	237	386	8371
EN22	Non-hazardous waste (including recycled) (mt)	16,017	13,483	755	368	13,734	11,662	25,513
EN22	Waste recycled (%)	20	26	62	62	40	28	32
EN22	Waste disposed to landfill (mt)	18,671	20,614	153	138	8195	8,648	29,400
EN23	Spills (L)	0	0	0	0	0	0	0
EN28	Environmental fines (\$)	0	0	0	0	NA	0	0
SO8	Fines for non compliance with laws (\$)	0	195,000	0	0	NA	0	195,000

\* For a full list see pages 51-54.

## GRI CONTENT INDEX

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