

Environmental Activity Report and Results

1. Introducing New Products Contributing to the Reduction of Environmental Loads

● Branch jointing technique for use in polyethylene (PE) pipes of the same diameter

We developed the branch jointing technique for use in PE pipes of the same diameter, for which we were awarded the Technology Award by the Japan Gas Association in fiscal 2015.

This innovative construction technique makes it possible to separate existing PE pipes of the same diameter. Until now, when performing branching with the same diameter for buried PE pipes, the installation of a bypass pipe was necessary at the front and rear of the branching position, which required a large amount of the surrounding area to be excavated. The new technique uses special pipe fittings and tools which make it easier to perform branched PE piping. This reduces both the area that needs to be excavated and the number of parts used, greatly reducing the environmental burden, construction costs, and the amount of work involved.

High-Grade Functional Components Company

Pipe fittings used in branch jointing technique for use in PE pipes of the same diameter

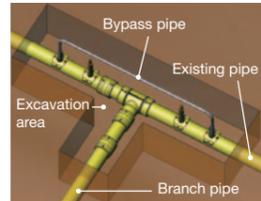


For narrow-rimmed piping

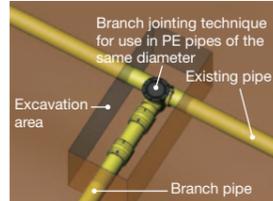


For wide-rimmed piping

Construction examples



Conventional method



Branch jointing technique for use in PE pipes of the same diameter

● "Tribec™ Kagari" PVD coating for high-tensile strength steel sheet molding dies

The Company developed the "Tribec™ Kagari" PVD* coating for high-tensile strength steel sheet molding dies, for which it was awarded the Sokeizai Center President's Award at the 31st Sokeizai Industrial Technology Awards in fiscal 2015.

This coating is made by forming a film composed of AlCrV (aluminum, chrome, vanadium) nitride on the mold parent material. It improves both mold abrasion resistance and seizure resistance, and greatly extends mold lifespans.

*PVD: Physical Vapor Deposition

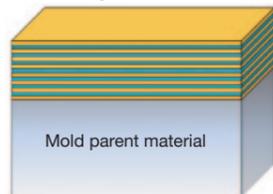
High-Grade Metals Company

Tribec™ Kagari



Exterior of PVD-coated die steel

Tribec™ Kagari film structure



Multiple layers of nanoscale-level (1/1,000,000,000 m-level) thin film

Recognizing the importance of protecting the environment, we will ensure effective and environmentally conscious utilization of limited natural resources in order to bestow a clean environment to the next generation. Through creation of new products and businesses that bring new value to society, we will base our sustainable growth on the provision of high quality products in harmony with the environment.

2. Waste Reduction and Resource Recycling Measures

● Lecture on examples of 3R measures

In August 2015, Kumagaya Works presented a lecture entitled "Examples of 3R Measures by Discharging Companies" at Saitama Prefecture's Appropriate Industrial Waste Disposal Seminar. In addition to presenting the 3R (reduction, reuse, and recycling) measures used for the waste products generated by Kumagaya Works during the production of aluminum wheels for use in automobiles and introducing electronic manifests, it provided case studies of disassembly and processing of waste with low levels of PCB contamination (extra-high voltage transformers, etc.).



Lecture at Saitama Prefecture's Appropriate Industrial Waste Disposal Seminar

3. Consideration for the Preservation of Ecosystems

The Hitachi Metals Group promotes ecosystem prevention measures that include tree planting and forest conservation activities, cleanup activities in areas surrounding factories, and environmental education.

● Examples of major tree planting and forest conservation activities

Hitachi Metals (India) Private Limited held the "Environment Function," an environmental conservation awareness-raising event, performed tree planting, and provided environmental education. Other business bases also carried out tree planting and forest conservation activities.

● Ecosystem preservation activities

Until fiscal 2015, the Hitachi Group focused on assessments based on its "Ecosystem Preservation Guidelines." Based on these assessments, from fiscal 2016 onwards, we will implement specific ecosystem preservation activities.



Carried out tree planting and provided environmental education at the "Environment Function," an environmental conservation awareness-raising event (Hitachi Metals (India) Private Limited)



Participated in tree planting and growing activities at Mt. Malepunyo (Hitachi Cable Philippines, Inc.)



Participated in the Third Millennium Hope Hills Tree Planting Festival (Kitanihon Sales Office, Hitachi Metals Trading, Ltd.)

The Hitachi Group's Environmental Vision

The Hitachi Metals Group advances "Prevention of global warming," "Conservation of resources," and "Preservation of ecosystems" as the three key pillars of the Hitachi environmental vision. It promotes global *monozukuri* with the aim of reducing environmental loads through product lifecycles, to realize a sustainable society.



Prevention of Global Warming

In fiscal 2015, CO₂ emissions from the Hitachi Metals Group's business activities increased year on year, to 2,771 thousand tons.* The primary reason for this increase was the addition of Waupaca Foundry, Inc. (United States) and Hitachi Metals MMC Superalloy, Ltd. to the Group. CO₂ emissions excluding these two companies fell by 73,000 tons year on year.

The Hitachi Metals Group carries out energy-saving activities coordinated with its *monozukuri* to reduce CO₂ emissions. Specifically, these activities include omitting excess processes, improving efficiency, obtaining higher yield rates, and introducing energy-saving equipment.

*Electricity accounts for 62% of the Hitachi Metals Group's CO₂ emissions, followed by coke and town gas, respectively. In Japan, the power company CO₂ emissions coefficient is based on the "power supplier emissions coefficient" announced by the Ministry of the Environment; outside Japan, it is based on the 2008 IEA "country-specific conversion coefficient."

Trends in CO₂ Emissions and CO₂ Emissions Per Unit

