Service provider to industry
and the construction trade

The STEAG Power Minerals network
Welcome to STEAG Power Minerals.

We are extremely pleased to be able to show you on the following pages what makes our company special and what makes us so strong as the European expertise leader in the recycling of power plant by-products.

Together with the most important facts about our products, which are used in many construction projects at home and abroad, we are also pleased to present you with an overview of our international network which ensures a high level of reliability in deliveries to our customers. Furthermore, we will take you on a tour of our plants and laboratories where our employees work to enhance the quality of our products day by day. With the latest technology, know-how acquired in many years of experience and a strong team, we are guaranteed to find the right solutions in dialogue with our customers and partners.

The Directors of STEAG Power Minerals GmbH

Uwe Rath    Andreas Hugot
Who we are

We regard ourselves as a learning enterprise, have principles and work together to add value.

ANDREAS HUGOT, DIRECTOR

A reliable partner to industry and the construction trade, a problem solver with individual concepts for each customer – all that is STEAG Power Minerals. As a wholly owned subsidiary of STEAG GmbH we, with numerous subsidiaries and regional partners of our own, are the European expertise leader in the recycling of by-products from hard coal fired power plants.

As a service provider to industry and the construction trade, our focus is on two lines of business: recovery of the power plant by-products and the production and supply of construction materials, blasting abrasives and industrial minerals. Our functions also include supplying power plants with refuse-derived fuels and absorbents for flue gas treatment. Together with disposal strategies for major power supply utilities, we, as a company with links to municipal utilities, also supply a complete range of services for small municipal operations through our subsidiary MINERALplus.

What motivates us is to find the most economical, safest and best solution for each individual customer. That is what we work for day by day at our facilities in Germany and in numerous international subsidiaries.

International orientation with regional roots

In spite of our international growth, we have made it our principle to retain the virtues of a medium sized enterprise. That means taking our customers’ wishes seriously, maintaining close contact with people, reacting rapidly and flexibly to changes on the market, and acting responsibly.

We are pleased that you want to get to know STEAG Power Minerals better. We have collected information for you on our products, services and business philosophy on the following pages. If you would like to know more about us, our expert contacts will be there for you at any time.
Our growing international network

STEAG Power Minerals is your independent partner for fly ash, FGD gypsum, bottom ash, blasting abrasives, industrial minerals and more. For our roots are in the power sector: We are wholly owned by STEAG GmbH, which has been engaged in power generation for around 75 years now. Consequently, we have extensive know-how in the recovery and recycling of power plant by-products such as fly ash, FGD gypsum and bottom ash. We develop individual concepts for the collection of power plant by-products and pursue an all-encompassing approach to product recycling.

One of our great strengths as a service provider is our excellent international network of partners, subsidiaries and affiliates in Europe and beyond. Together, we have developed an infrastructure with which we ensure reliable disposal and supply of materials for our customers.

The recycling rate for fly ash from hard coal in Germany is almost 100 percent, and the recycling of fly ash and other power plant by-products is also becoming more and more important internationally. This requires flexible logistics solutions. Wherever our products are to be used: With our global network and our many years of project experience, we always find a way – by road, ship or rail – in Germany, Europe and worldwide.
Excellent logistics, reliable deliveries

We ensure smooth and fast logistics for our customers – from transport through transshipment to storage. By ship, truck or rail: STEAG Power Minerals cooperates with over 100 reputable logistics service providers and can draw on decades of experience in the handling of bulk materials.

We have the know-how needed to move our products rapidly and reliably – for efficient logistics chains are the key to success for every project at home and abroad. We know that our customers always expect to receive their products on time and in the required quality and quantity, and we therefore do everything to ensure their security of supply. To do so, we work in close cooperation with our power plant customers and devise flexible logistics strategies. Together with a wide range of storage facilities and large silo capacities, we also have transshipment facilities at international ports with buffer warehousing for subsequent distribution.

No matter whether we are to handle the entire design, implementation and supervision of the logistics chain for you, or only part of it, or you wish to collect the goods yourself, we will adapt flexibly to accommodate your wishes.

“We have a very well developed logistics network with a large number of strong partners throughout Europe.”

DR. HANS HERMANN, HEAD OF LOGISTICS / MATERIAL FLOWS
Valuable properties

Our power plant by-products

steamfl shay – the construction material that fills even the smallest gaps

Versatile in application, environmentally friendly, cost-effective and especially valuable for the construction industry: Our hard coal fly ash steamfl shay combines numerous benefits for our customers in a single product. Steamfl shay is a high-quality construction material with a broad range of applications, which can enhance many other construction materials and replace the standard fillers. The strengths of fly ash come fully to the fore in the manufacture of concrete and cement.

In concrete, the fine, round particles of fly ash act like small ball bearings, improving the workability, water demand and compactability of, for example, shotcrete and high-performance concrete. The strength of the concrete is also significantly improved because the particles of fly ash fill cavities in the concrete. In addition, the fly ash strengthens the concrete even after several years by means of its pozzolanic reactivity, i.e., it reacts with the cement and water in the concrete. This post-set hardening makes the concrete denser, more resistant and more durable – indispensable properties, for example, for bridges, tunnels and foundations.

Light, versatile and climate-friendly – steamint bottom ash

Steamint bottom ash is an excellent, easy to use construction material. It combines especially favorable material properties with low environmental impact. The applications in which bottom ash is used include the production of concrete goods, landscape gardening, and use as a bulk material in road building.

Our FGD gypsum steagips – regulates humidity and protects the environment

Steagips FGD gypsum from STEAG Power Minerals is used to produce a wide variety of environmentally friendly gypsum construction materials of the highest quality. Gypsum is a highly useful building material from a physiological point of view, as it has a regulating effect on humidity. In Germany, gypsum is mainly used for interior finishing. Around 75% of gypsum production is used for plasterboard, or building plasters such as facing plaster or filling compound. But the cement industry also uses gypsum as a curing retardant, and the ceramics industry makes casting molds from gypsum. Smaller quantities of gypsum are also used as a carrier substance for tablets, and for plaster casts.
The cleanliness of the air we breathe is a decisive factor for our health and quality of life. Especially in urban environments we are exposed to pollution, above all in the form of nitrogen oxides emitted by road traffic and industry. Nitrogen oxides also contribute to the formation of harmful ground-level ozone, especially in warm weather conditions.

Stringent limits for nitrogen oxides throughout the European Union were established in 2010, requiring full compliance by no later than the end of 2015. If the pollution in cities exceeds those limits, action must be taken to improve the air quality. Pollution is already being measured continuously in many major cities, revealing that contaminant limits are regularly exceeded.

Photoment is added as a fine-grained powder to other construction materials (e.g. concrete or mineral-based plasters) during the production process. As a photocatalyst on the surface, when exposed to light, it causes organic and inorganic molecules to degrade. In this way, contaminants in the ambient air, and above all nitrogen oxides, can be decomposed in daylight and also under artificial lighting. This process creates nitrates which are washed away with the next rainfall.

The efficiency of the photocatalyst increases as the proportion of UV radiation rises. In laboratory tests, depending on the light source, an NOx reduction of up to 80% was achieved with the pure powder. The reaction can be repeated an unlimited number of times, as the photocatalyst itself is neither consumed nor otherwise impaired. Furthermore, the surface chemistry of Photoment in conjunction with light ensures that any foreign material adhering is eroded and rinsed off by the impact of water. Thus surfaces remain cleaner and brighter for longer.

Photoment – A variety of potential applications
Using Photoment can be beneficial wherever large surfaces come into contact with light and air. It is especially effective for a range of applications.

- Paving blocks and concrete slabs
- Roofing tiles
- Façade plasters and paints
- Road surfacing / white topping
- Acoustic barriers and screen walls

By adding Photoment to our product portfolio, we can now offer an innovative and ecological building material that helps to improve air quality and quality of life.

WOLFGANG BEER, HEAD OF PROCUREMENT & SALES POWER PLANT BY-PRODUCTS
With decades of know-how on the market for blasting abrasives, optimum access to high quality raw materials and Europe's most modern production facility, STEAG Power Minerals markets abrasives of the highest quality for a broad range of applications. Disposable blasting abrasives made from slag tap granulate, fine abrasives for especially sensitive surfaces or reusable abrasives which can be used a thousand times: We know what our customers want, and supply the optimum solution for every blasting process. We do not regard ourselves merely as a supplier, but rather as a full service partner for our customers, who we support from selection of the product through the establishment of an effective logistics strategy to recycling and disposal of the abrasives.

**ASiLiKoS – optimum properties for high quality results**

With our disposable blasting abrasive ASILIKOS, our customers benefit from the unique characteristics of its raw material, as slag tap granulate is an environmentally friendly mineral substance. In all applications, ASILIKOS produces outstanding surface quality in terms of cleanness and defined roughness. As blasting processes have become more and more specific in recent decades, our product range also includes solutions for special applications: All materials which must not come into contact with iron, for example, can be treated with the non-ferrous abrasive AFESIKOS. For particularly sensitive surfaces or for cleaning of historic buildings like Cologne cathedral we supply ASILIT, whose especially fine grading of grain sizes can only be achieved by our state of the art production facilities.

Apart from blasting abrasives made from slag tap granulate, STEAG Power Minerals supplies a broad range of reusable abrasives for various applications, in the form of products such as GARNET HS, CORUNDUM SK or STEEL SHOT.

**For perfect effects**

As decorative materials, for water jet cutting or to provide an individual surface design, our industrial minerals such as ASILUX are specialists for perfect effects – as are our experienced service representatives who can offer every customer the right products for the desired application.

“STEAG Power Minerals has the best secured raw material sources for abrasives in the entire industry.”

**MARCUS KLENKE, HEAD OF PROCUREMENT & SALES FOR BLASTING ABRASIVES AND INDUSTRIAL MINERALS**
Protecting the environment and saving CO₂
Our refuse-derived fuels and absorbents

Apart from power plant by-products, blasting abrasives and industrial minerals, STEAG Power Minerals supplies further products which are used in particular by our partners in the power sector, but also in other sectors of industry. They are of central importance, especially for the areas of power plant operation which are relevant to the environment.

Absorbents for flue gas treatment
Our highly reactive absorbents, based on lime, are used in a multitude of industrial processes – mainly for flue gas treatment in power plants, but also for water treatment. In flue gas treatment, harmful waste gases are bound in the lime and precipitated, for example as FGD gypsum. This significantly reduces the emissions from power plants and thus conserves the environment.

Economical operation with refuse-derived fuels
Our refuse-derived fuels, which are mainly created during waste water treatment in sewage plants, have a high calorific value and represent a valuable and environmentally friendly alternative to other fuels. In addition, they provide our customers with an opportunity to improve their CO₂ efficiency significantly, as with the addition of refuse-derived fuels for combustion in power plants, fossil fuels can be replaced by fuels of organic origin.
Our subsidiary MINERALplus is specialized in the disposal of industrial waste and the production of construction materials from waste. It came into being in its present form in the year 2000 with the merger of a total of four companies which had been disposing of and recycling industrial waste for several decades.

Production of construction materials
MINERALplus produces construction materials from waste in dust form at its mixing plant in Gladbeck. The materials are used as mine packing or landfill construction materials or as asphalt fillers. The incoming waste and the production of the construction materials are continuously monitored in the company’s own laboratory, which is accredited to DIN EN ISO/IEC 17025.

Stassfurt viscous slurry packing plant
For packing of two salt caverns in Stassfurt with a volume of around two million cubic meters, Minex GmbH (50 percent MINERALplus) produces pumpable packing material from construction materials pre-mixed in Gladbeck and waste which is delivered direct.

In a pilot project unique in Europe, MINERALplus succeeded in developing packing material for the filling of caverns which increases the stability of the underground cavities and at the same time has favorable effects on the environment: Subsidence can be prevented, the leaching of salt into the groundwater is minimized and the residues from waste to energy plants are safely disposed of by complete enclosure in the salt-bearing rock.

Waste management and trading
Together with ash, reaction salts and sludge, MINERALplus also disposes of other waste and is pleased to support customers with waste analysis and identification services, stipulation of disposal channels and logistics, and electronic documentation. With its subsidiary Felix Höltken GmbH, based in Cologne, MINERALplus also has facilities for orderly disposal of building rubble.

Troisdorf landfill
Not all waste is suitable for recycling. Contaminated soil and building rubble in particular, and other kinds of mineral waste, have to be disposed of. With its landfill in Troisdorf, MINERALplus has a permit to dispose of waste of landfill class III.
Continuous monitoring for optimum quality – Our laboratories

Our know-how on fly ash and other power plant by-products is one of our great strengths. We search continuously for new fields of application, develop new construction materials together with our customers, and constantly strive to increase the proportion of fly ash in concrete. We are pleased to make our research and development experience directly available to our customers.

A broad range of accredited services in the Construction Materials Laboratory

The STEAG Power Minerals Construction Materials Laboratory is where our expertise on building materials and our know-how concerning fly ash and other power plant by-products come together. With the variety of testing and development opportunities present there, we offer our customers a decisive added value. With modern laboratory equipment and highly qualified staff, we can also ensure consistently high product quality.

The Construction Materials Laboratory performs a wide range of tasks. On the one hand, we perform regular tests for the quality management of the power plant by-products. On the other hand, we perform research together with our customers into new and improved environmentally friendly solutions – including new construction materials, innovative applications and improved formulas for concrete.

The Construction Materials Laboratory is certified by the German Association of Material Testing Institutes (VMPA) as a permanent concrete testing laboratory, and also has accreditation to DIN EN ISO/IEC 17025:2005 for a broad range of tests on construction materials. As an organization approved by the Chamber of Commerce and Industry to train staff, we regularly train people to qualify as construction materials inspectors.

Professional fuel analysis in the Fuel Laboratory

Together with the Construction Materials Laboratory, our Fuel Laboratory adds a further valuable component to our expertise and range of services. There, we provide accredited analysis services for solid fuels to customers from power generation and manufacturing industry. Furthermore, our Fuel Laboratory enables us to gain valuable knowledge on the effects of various solid fuels on the properties of our ash products. The Fuel Laboratory is also accredited to DIN EN ISO/IEC 17025:2005.

Our customers are provided with the full range of our expertise from under one roof.

FINE ECK, HEAD OF THE STEAG POWER MINERALS CONSTRUCTION MATERIAL AND FUEL LABORATORY
State of the art technology – unique and efficient

Our plants

Blasting abrasives from slag tap granulate

In Lünen, STEAG Power Minerals GmbH produces blasting abrasives and decorative construction materials in Europe’s most cutting edge plant. The raw material is the vitreous slag tap granulate produced during the combustion of hard coal in power plants. It is created by the rapid cooling of liquid ash in a water bath. This granulate is processed into blasting abrasives and decorative construction materials. The recycling rate is 100 percent.

The works is directly adjacent to the Lünen power plant and is supplied with the slag tap granulate via a conveyor belt leading from the power plant site. The abrasives plant has a production capacity of up to 60 tonnes per hour.

At the works, the raw granulate is pulverized, dried, sieved and temporarily stored in individual product silos. The individual grain sizes are mixed in accordance with specified formulas for the relevant application. The finished product is then packaged in either paper bags or Big Bags, or loaded onto tipper or silo trucks.

The maximum annual production is 160,000 tonnes. The customers are as a rule supplied just in time.
At the site of the Lünen depot, STEAG Power Minerals GmbH has been operating a fly ash drying plant which is the first and only one of its kind in Germany, since 2001. There, up to 100,000 tonnes of moistened fly ash can be processed each year and made available to the construction industry after the drying process as high quality building material in two silos of 900 m³ capacity each.

The moistened fly ash is tipped into a feed hopper by wheel loader and conveyed into the plant on a conveyor belt. The moisture is then removed from the fly ash in a hot-air dryer. A combustion chamber fired by natural gas supplies the hot air with which the material is dried and fed to a classifier. The classifier separates the fine material from the coarse. The fine fly ash is conveyed by the flow of air into a baghouse, where it is removed.

The coarse component is fed through a hammer mill, pulverized there and fed back into the process. The cleaned air is discharged into the atmosphere through a chimney, while the fly ash is conveyed into the silos mentioned above by screw and bucket conveyors. The plant has a drying capacity of up to 50 tonnes per hour.

“...Our facilities in Lünen provide us with unique technical opportunities to give our customers a distinct added value...”

ANDREAS SYMMA, PLANT MANAGER IN LÜNEN
Well advised and quality assured

Quality & Service

Quality assurance
The quality of our products is our interest and concern, as our success depends on the satisfaction of our customers. In the manufacture and selection of our products, we therefore follow quality standards which place stringent demands on production processes, product characteristics and the company organization. In order to meet these demands, we have introduced an internal Quality Management System.

Over and above that, the product quality and our quality management are regularly checked by independent institutes. We will be pleased to provide you with the corresponding certificates of compliance and conformity.

Consultancy and planning
If you require information on quality and applications, or have any questions on environment, waste and product law or REACH, our experienced technology team will be pleased to assist you. We will also be pleased to help you in matters concerning technical standards or product certification.

Our team also handles projects from the areas of product development (new construction materials) and applications development (new fields of application) and can effectively contribute its know-how to the establishment of new technical recycling concepts.

In matters concerning materials handling and silo technology and other technical aspects of bulk goods logistics, we are also the right contact for you. Our experts from the field of process engineering and logistics also perform projects in the fields of conditioning and processing methods for power plant by-products.
Efficiency meets sustainability

Because our work turns supposedly worthless by-products into valuable construction materials, and as a result conserves natural resources, the fundamental business philosophy of STEAG Power Minerals is one of sustainability. The carbon footprint of fly ash, for example, is excellent. It replaces other, highly CO₂-intensive components in concrete and cement. In this way, almost one tonne of CO₂ can be saved for every tonne of fly ash. In classical cement, for example, steam can replace up to 35 percent of the expensive and CO₂-intensive Portland cement clinker. Fly ash therefore also contributes to the conservation of other primary raw materials.

Acting responsibly and developing together

The work of STEAG Power Minerals is based on a stable system of values to which we are committed in all areas of the company. To us, success not only means doing our best for our customers and employees. Success also means approaching our objectives responsibly and in accordance with the law. We accept no injustice or illegality, and tolerate no exceptions.

Generally accepted fundamental ethical values such as the principles of the Global Compact constitute important guidelines for our entrepreneurial actions. The principles of acting legally, ethically and responsibly form the basis of the STEAG Code of Conduct, which applies to all subsidiaries of STEAG. In addition, we invite our employees to review and take an active part in shaping the objectives and strategies of STEAG Power Minerals in workshops and strategic committees.
Careers at STEAG Power Minerals

Wanted:
people with passion and new ideas

STEAG Power Minerals GmbH is looking for people with energy, commitment and new, original ideas. We offer all our employees the opportunity to gain experience and take on responsibility rapidly. No matter whether you have many years of experience or are new to your profession, we value the expertise and know-how of every individual employee. For us at STEAG Power Minerals, maintaining the balance between family life and work is an expression of the social responsibility of our company.

If you are interested in one of our vacancies, please contact us. We will of course also be pleased to receive speculative applications.

“From the first day onwards, we offer new employees the opportunity to take on responsibility.”
UWE RATH, DIRECTOR