



# **ENVIRONMENTAL STATEMENT 2017**

## KAMAX GmbH & Co. KG

with sites

Osterode am Harz including Production Plant II and Homberg (Ohm) and Alsfeld



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## PREFACE

The protection of environment and the conservation of its resources are Company goals of high priority and our environment management cares for observance of laws and sets high standards for it.

At the development of our products already, environment friendly arrangement, technical safety and health protection must be firm objective criteria.

The responsibility towards employees and colleagues demands the best possible precaution against dangers of accident. That applies both to technical planning of workplaces, equipment and processes and to safety management and personal behaviour in day-to-day work.

To preserve and extend our competitiveness, the Kamax Produktions Management (KPM) Project was started in late 2008.

KPM is a comprehensive management system tailored to KAMAX, through which we will achieve improvement in all Company areas. KPM supports the sustainable change of our working methods and of our Company structure.

One of the eight KPM pillars deals exclusively with the topics of working safety, environment and health protection, highlighting distinctly the importance of these issues for long lasting success of our Company.

In order to inform the employees, neighbours, customers, suppliers and other interested persons about our activities for promotions and implementation of environmental and future-oriented innovations, we elaborate an Environmental Statement every year.

This Environmental Statement 2017 considers the figures, data and facts of the years 2007 through 2016.

The occupational safety, environment and health protection rest primarily upon responsible actions of every individual, and would therefore not be possible without active support of our employees.

They deserve our special thanks.

Christian Diehl Management of KAMAX GmbH & Co. KG German Operations

Dr. Markus Schiffmann



## **1. GENERAL INFORMATION ON THE COMPANY**

KAMAX Group includes seven production units (Operations) worldwide. Five of them in Europe. Other two are situated in the USA and in China. All KAMAX production plants make high-strength fasteners and cold formed parts. Buyers of our products include car manufacturers and their subcontractors.

The central functions of Purchase, Sales and Research and Development are organized within AMAX Automotive GmbH.

KAMAX GmbH & Co. KG includes the sites of Osterode am Harz (Plants I and II), Homberg (Ohm) and Alsfeld.

## 1.1 OSTERODE AM HARZ PLANT (PETERSHÜTTER ALLEE 29)

The Osterode Plant was founded as the first KAMAX Plant by Mr. Dr. Rudolf Kellermann in 1935.

In 2016, more than 300 employees were working in it, manufacturing more than 600 different products.

The site is situated in the outskirts of the town of Osterode am Harz. It disposes of a total area of about 59.000 m<sup>2</sup>; the built-up area covers about 26.000 m<sup>2</sup>. The exploited areas are situated in a mixed region.

The site is bounded in north-east by "Petershütter Allee" Street and by Motor Highway B 243. There are residential houses in the neighbourhood. "Ellernkamp" Street runs in south-east; a car dealer and a residential house is in the neighbourhood. The Söse River is at the south-west border of the plot. Further industrial establishments are situated in north-west.





## 1.2 OSTERODE AM HARZ PRODUCTION PLANT II (AN DER BAHN 163)

To extend the production areas at Osterode Plant, production shops were rented at about 3 km of Plant I. Since May 2009, special bolts have been manufactured there.

The production shops dispose of a shop area of 4 500 m<sup>2</sup> incl. 440 m<sup>2</sup> office / social spaces.

In 2016, about 55 employees worked there.

The production shops are situated in "Westharz" Industrial Park of Osterode am Harz, Lasfelde District.

The site is bounded in the north by "An der Bahn" Street, and by the Söse River in the south. Further industrial establishments are situated in the east, while the plots in the west are still undeveloped.





## 1.3 HOMBERG (OHM) PLANT (DR.-RUDOLF-KELLERMANN-STRAßE 2)

The plant was founded in 1955 and is situated in the outskirts of the town of Homberg (Ohm).

In 2016, more than 700 employees were working in it at manufacture of more than 3,000 different products.

According to the Land Use Plan, the administration building is situated in the industrial area and the production shops in the industrial park.

The site disposes of a total area of about 190.000 m<sup>2</sup>; it is bounded by the Ohm River in the north (north-west to north-east) and by agriculturally exploited areas in the east.

"Neuhaus" Street runs in south-west and further industrial establishments are situated in the south.



GENERAL INFORMATION ON THE COMPANY



## 1.4 ALSFELD PLANT (AM KREUZWEG 4)

The plant was founded in industrial area of Alsfeld-Altenburg in 1970, closed in 1994, and a part of the areas and the building were tented to smaller business establishments.

In 1996, the production was restarted as outhoused production plant of Homberg Plant.

In 2016, about 250 employees worked there.

The plant disposes of a total area of about 170.000 m<sup>2</sup>; the built-up area covers about 14.000 m<sup>2</sup>.

It is bounded by Federal Highway B 254 in the west and by "Am Kreuzweg" Street in the south. The northern boundary consists of former railway route, now shut down. In the east, there are agriculturally exploited areas.

Residential buildings are not affected by the plant.





## 2. STRUCTURE OF FACILITIES AND CLASSIFICATION ACCORDING TO ENVIRONMENTAL LEGISLATION

A metal processing company is concerned by a number of regulations, requirements and laws due to a great amount of environment relevant impacts. The environment relevant facilities are listed below.

Except for Osterode Plant II and Alsfeld, facilities subject to permission according to the Federal law of air pollutant protection (BlmSchG) are operated in the sites of KAMAX GmbH & Co. KG.

That concerns the surface treatment facilities and the attached waste water treatment facilities as well as secondary facilities (warehouse areas), and additionally a methanol warehouse in Homberg Plant.

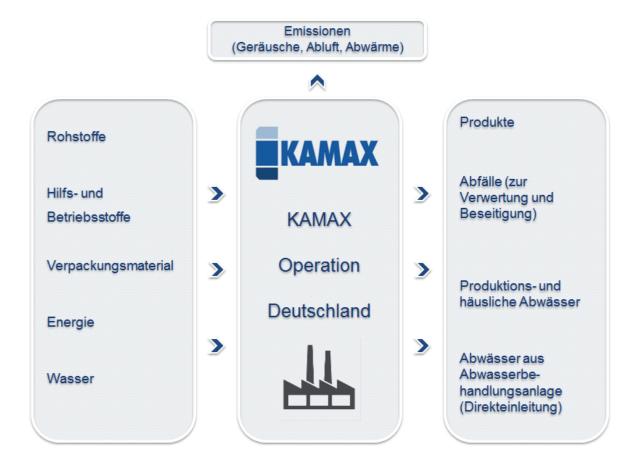
There are different facilities subject to the Regulation on facilities handling water-polluting substances (AwSV).

Permissions to drain water for operation purposes and to conduct surface, cooling and operation waste water back to the Söse (Osterode Plant I), the Ohm (Homberg) and the Schwalm (Alsfeld) are available.

Domestic waste water is disposed through public waste water treatment plant.

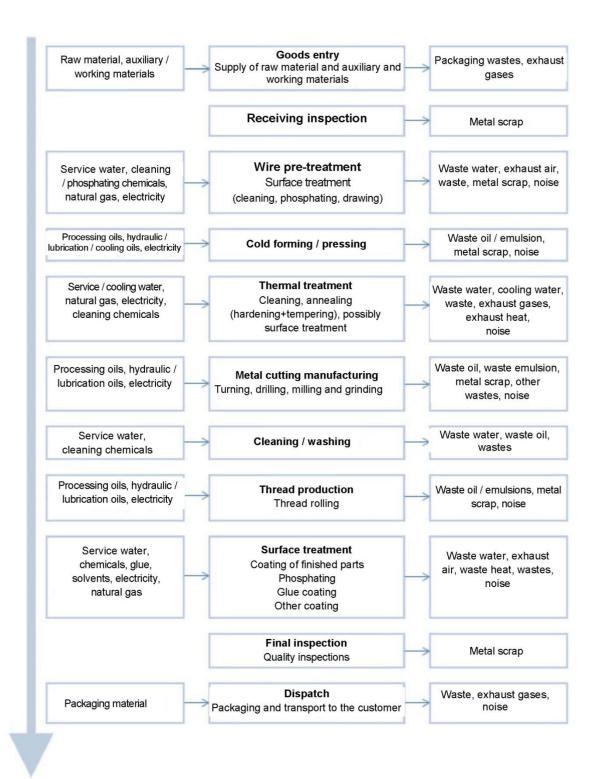
The plants have several warehouse areas available and hazardous substances are stored in them in compliance with the regulations.

Production specific waste, as well as the waste occurring in the whole company are classified as hazardous and non-hazardous wastes and either recycled according to the waste regulations or duly disposed.





## 2.1 ESSENTIAL STEPS IN PRODUCTION PROCESS





# **3.** MANAGEMENT SYSTEM FOR ENVIRONMENT, HEALTH AND OCCUPATIONAL SAFETY PROTECTION (EHS)

#### The goal of the EHS Management System is

- assurance and demonstrable documentation of observance of all relevant legal and other operational requirements on environment, health and occupational safety protection,
- systematic, objective and regular assessment of operational performance and promotion of continuous improvement of environment, health and safety protection in the company,
- definition and implementation of plant related environmental policy, goals and programs, as well as
- control of environmental impacts that could arise due to the activities and operation of the facilities and their minimization with the best available technology.
- Protection of the health of our employees and prevention of injuries, as well as of work-related diseases.

The Management System applies to all employees at all levels, whose work is related with impacts on occupational safety, environment and health and who are responsible for the observance of our environmental policy, environment goals and for the implementation of the environmental program.

#### Organization of EHS Management System

The structure of KAMAX GmbH & Co. KG has four levels:

- first level: Company Management
- second level: Plant Management
- third level: Department Heads
- fourth level: foremen / shift leaders / group speakers



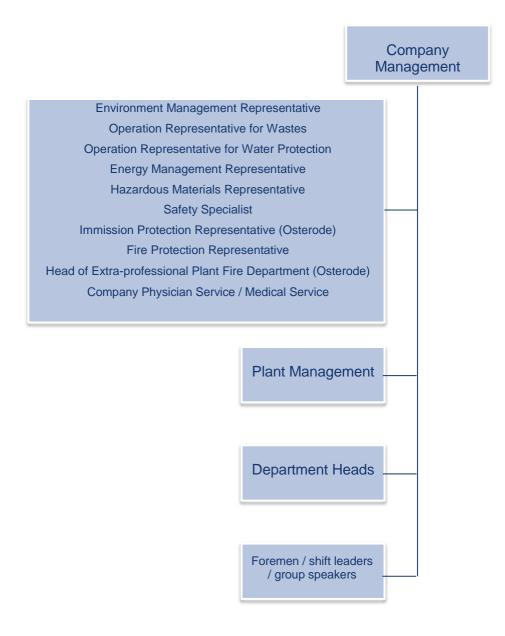


The company management of KAMAX GmbH & Co. KG bears general responsibility for due operation in the plants.

The responsibility in operational process is covered by line functions according to their relevant functions. Headquarter positions have consulting, preparing and supporting tasks.

EHS relevant functions like Environment Management Representative, Waste and Water Protection Plant Representative, Air Pollutant Protection Representative (Osterode) and Hazardous Materials Representative are under direct control of Company Management.

The EHS Management System is supported by the KPM pillar of environment, health and occupational safety and regulated and defined in different processes (e.g. Environment management handbook, as well as in KMP tools: standard worksheets, Knowledge Flashes).





## 4. ENVIRONMENTAL POLICY OF KAMAX GMBH & CO. KG

The economic success of a company can be permanently ensured only if also environmental aspects and thus the active environment protection are anchored in the company as strategic task. However, the sole observance of legal regulations and adherence to environment-conscious behaviour are not sufficient to us. Within the KAMAX Environment Management System, we work with high priority on minimizing the environmental impacts of our products and processes in order to contribute actively to long lasting preservation of an environment worth living. Last but not least, our products themselves ensure that car engines and components can become smaller, minimizing the mobility based emissions.

#### KAMAX environmental standards

The reliable observance of the environment protection laws is commonplace to us, but it is not sufficient in any case. Our internal rules even exceed them in some areas. We review our environmental policy regularly and integrate innovations into it.

#### Products and processes

When optimizing our products and processes, as well as when developing them further and when choosing our raw, auxiliary and working materials, we consider consistently the environmental knowledge. In that process, the energy efficiency is continuously improved not only within the production processes but also in our administration areas. We supervise the environmental impacts of our plants permanently and strive to adopt adequate measures under use of the best available technology. We always act proactively in that process, as preventive care is better than aftercare.

#### Promotion and motivation

Environment protection is based on responsible behaviour of everybody. All employees are jointly responsible for behaviour towards environment and health protection in their working environment and each executive has to set an example of and to support the perception of such responsibility. KAMAX promotes actively the development of environmental awareness of the employees at all levels through trainings, information and involvement in process formation.

## Emergency behaviour and averting of danger

Together with experts and authorities, we have developed detailed alarm and danger-averting plans tailored to the conditions of individual plants. We ensure through regular trainings and emergency exercises that all employees are familiar with those plans and that their efficiency is further continuously examined.

#### Efficiency examination

We assess and supervise the efficiency of our Environment Management System and thus of all environmental aspects related to our activities through regular audits and other measures. Additionally, the Company Management defines necessary corrective actions and new goals to improve our environmental performance in Management Reviews.

#### Communication

We practise a transparent information policy. Both our customers and the interested public learn regularly the measures and results we implement to protect sustainably the environment.



Activities in the

#### 5. ASSESSMENT OF ENVIRONMENTAL ASPECTS AND IMPACTS AT THE KAMAX GMBH & **CO. KG PLANTS**

Environmental aspects constitute parts of our activities, products or services that could have positive or negative impacts on the environment, i.e. on

- air, water, soil
- flora, fauna .
- natural resources
- people

as well as their interactions. The impacts can be locally bounded but also affect the global system.

Indirect environmental impacts are impacts we can influence to some degree through our connection to upstream or downstream areas:

- Suppliers and service providers
- Use / utilization of the product
- Transport and forwarding



Direct environmental impacts are impacts subject to our immediate operation control that can be controlled or influenced through internal management decisions:

- **Energy efficiency**, as energy consumption
- Material efficiency, as consumption of raw, auxiliary and working materials
- Water, consumption and waste water
- Waste, as origination of wastes
- **Emissions**, as noise pollution
- **Biodiversity**, as use of land through space consumption

The following points are considered in annual **assessment** of environmental impacts:

- Exploitation of natural resources and raw materials including energy
- Avoidance, utilization, recycling, transfer and disposal of solid, liquid and other, particularly hazardous wastes
- Exploitation and pollution of soil
- Emissions into the atmosphere •

On the basis of the evaluation, classification in groups of different relevance takes place, with creation and visualization of indicators or core indicators (according to EMAS III) for essential environmental aspects.

#### The following evaluation is defined for the Osterode am Harz in Petershütter Allee 29, Homberg (Ohm) and Alsfeld plants:

High relevance as essential environmental aspect with need for action for:

- Water and waste water based on the permission situation and as direct discharger •
- **Energy efficiency** for responsible resource handling
- Emissions in form of noise



• only for the Osterode plant: Emissions in form of smells

**Medium relevance** as average environmental aspect with normal significance for:

- Water within the meaning of water consumption
- Waste as total amount and proportion of hazardous wastes
- Material efficiency as material consumption with minor starting points for amount reduction

#### The following evaluation is defined for the Osterode am Harz Plant II, An der Bahn 163:

High relevance as essential environmental aspect with need for action for:

• **Energy efficiency,** within the meaning of electricity consumption, for responsible resource handling.

**Medium relevance** as average environmental aspect with normal significance for:

- Water and waste water within the meaning of water consumption, as only very low amounts arise
- Waste as total amount and proportion of hazardous wastes
- **Emissions** in form of noise

#### The following applies to <u>all plants</u>:

Low relevance as environmental aspect with minor or no significance for:

- Biodiversity based on area restrictions no starting points for reduction of sealed surfaces
- Emissions of greenhouse gases and fine dust are not recorded due to low amount relevance
- Energy procurement from renewable energies is of subordinated significance, as an undefined energy mixture is procured through public suppliers
- **Suppliers and service providers** within the meaning of procurement, as no significant impact can be taken
- Use / utilization of the product, as the product by itself causes only low environmental impact
- Transport and forwarding of the product or of other necessary materials

The above stated evaluation results in definition of goals and derivation of adequate measures in our environmental program.

The visualization of the environmental aspects essential to us can be seen below.



## 6. ESSENTIAL ASPECTS AND IMPACTS RELATED TO WATER AND WASTE WATER

#### 6.1 OSTERODE AM HARZ PLANT (PETERSHÜTTER ALLEE 29)

At the Osterode Plant, water is used mainly for operational purposes as cooling and service or process water.

Based on the available decision of approval, it can be taken from the Söse, utilized and, similarly to the operationally used drinking water, discharged back to the Söse after some treatment.

The treatment takes place in the waste water treatment plant in form of neutralization and precipitation processes with upstream light fluid separators.

The water consumption and the waste water amounts are strongly related to the production amount.

The measures for reduction of water / waste water are to be evaluated further on as very positive.

Due to strict legal regulations for direct dischargers into public waters and to the amount-limited permissions, we have classified water and waste water as environmental aspect with high relevance for the future too.

Goal until 2016:	Achievement of the "Industrial waste water / annealed products" target value of 60% of the amounts of 2007 in the years 2016/2017
Goal forward	Stabilization of the "Industrial waste water / annealed products" target value of
projection 2017:	65% of the amounts of 2007 in the years 2018/2019

#### What was implemented in 2016:

- Reduction of water consumption / waste water: Project for reuse of cleaned waste water at washing facilities in heat treatment.
- Laying of empty pipes for later use of waste water in heat treatment.
- Continuation of visualization of regulation and control technology of the direct discharging neutralization.
- Improvement of waste water quality through separation of oils from the light fluid separator before the waste water treatment plant.

#### What was initiated / implemented in 2017:

- Optimization and extension of regulation and control technology of the direct discharging neutralization for further improvement of operation safety
- further improvement of facility safety through storage of steel scrap with adherent oil / emulsion under roof.
- Integration of a UV light facility (reduction of facility growth). That enables operation of further facilities with circulating water.

#### What is planned for 2018 already:

 further improvement of operation safety of the waste water treatment plant through technical access restrictions and organizational instructions for execution of cleaning processes in the washing area



The figures of the years 2009 through 2016 refer to the year 2007, reflecting the relative changes.

Input / output water		2007	2009	2010	2011	2012	2013	2014	2015	2016
Water	[%]	100	64.1	77.2	82.0	67.4	74.2	73.5	80.0	72.9
Waste water	[%]	100	60.7	75.9	77.4	63.7	71.7	67.6	75.4	72.0

In absolute figures, as well as in relation to the product amount, more water was taken from the Söse, as compared to the year 2015.

The valid limit values to be observed by us with regard to discharge of waste water are governed by municipal waste water rules and decisions of approval. Our waste water values are defined, additionally to automatic recording of measured values, also by manual sampling.

The measured values were to be constantly evaluated as very good within the regulatory and internal supervision (self-supervision).

Particularly thanks to the use of oil skimmers / pumps at all heat, surface treatment facilities and ultrafiltration plant, the supervised values of CSB (chemical oxygen demand = sum of all substances present in water and oxidizable under specific conditions) were reliably met.

Indicators		2007	2010	2011	2012	2013	2014	2015	2016
Industrial waste water / annealed products in tons	[%]	100	76.5	65.0	59.6	59.8	61.0	63.8	67.1
Waste water discharge (actual / permitted)	[%]	98.5	97.1	99.1	82.9	90.0	91.4	99.5	97.4
Service water consumption (actual /	[%]	45.1	33.9	36.2	30.2	32.1	30.1	32.2	33.0
Annealed products	[%]	100	97	116	106	115	114	119	111

The discharged waster water amount allowed for 2016 has been continuously met and could be slightly reduced as compared to 2015.

The environmental goal of "Reduction of industrial waste water / annealed products" to 60% of the amount from 2007 was, unfortunately, not achieved.

Since 2007, a continuous improvement by 30 - 40 % has been implemented. That improvement has been stabilized in recent years. The implementation of improvement actions constitutes a state of technology feasible at KAMAX.

Further optimizations can be implemented only in small steps, connected with high costs.

The indicator of "Service water consumption (actual / permitted)" has slightly increased as compared to preceding year, but in relation to the permission limit, it still offers a triple "safety distance".



## 6.2 HOMBERG (OHM) PLANT

At the Homberg Plant, water is used mainly for operational purposes as cooling, process and service water.

Based on the available decision of approval, it can be taken from the Ohm, utilized in operation and discharged back to the Ohm after some treatment.

The treatment takes place in the waste water treatment plant in form of neutralization and precipitation processes with upstream light fluid separators.

After treatment, the waste water of the waste water treatment plant is discharged into the public sewerage of the town of Homberg (indirect discharge).

Due to strict legal regulations for direct dischargers into public waters and to the amount-limited permissions, water and waste water is classified as environmental aspect with high relevance for the future too.

Goal until 2016:	Reduce "Industrial waste water / annealed products" to 72% by 2016 and keep that low level in 2017 Keep "Water consumption / annealed products" at less than 85% of the amount from 2007 also in 2016 and 2017
Goal forward projection 2017:	Keep the consumption related to "Industrial waste water / annealed products" at less than 72% of the amount from 2007 also in 2017 and 2018 Keep "Water consumption / annealed products" at less than 85% of the amount from 2007 also in 2017 and 2018

#### What was implemented in 2016:

- Continuing, now comprehensive installation of water meters in the area of the annealing facility as the main place where waste water is generated, for transparent survey of water consumption, identification of other weaknesses and identification of improvement potentials
- Establishing of a visualization and a fault monitoring system for water consumption of the annealing facility
- Continuing optimization of cooling water delivery to annealing equipment
- Optimization of emulsion splitting in washing machines and dephosphatizing facilities in order to increase the bath service life and reduce the waste water amount
- Installation of hot water evaporator at nitrogen tank, which contributes to cool the cooling water and thus leads to reduce its amount

#### What was initiated / implemented in 2017:

- Continuing optimization of emulsion splitting at dephosphatizing facilities and washing machines
- Analyze of water consumption of annealing facilities for identification of improvement potentials

- Technical optimization in the waste water treatment plant for further improvement of operation safety
- Optimization of visualization and fault monitoring system for water consumption of the annealing facility and training of operators
- Integration of hot water evaporator for nitrogen in the cooling water circuit for cooling and adequate reduction of water amount
- Decommissioning of surface treatment facility, accompanying better and more efficient utilization of the other facilities and reduction of waste water amount

#### What is planned for 2018 already:

 Further optimization of the waste water treatment plant for improvement of operation safety



The consumption values of the years 2009 through 2016 also refer to the year 2007. The amounts of water and waste water are to be compared. The relative changes are therefore represented in a common table.

Input / output water		2007	2009	2010	2011	2012	2013	2014	2015	2016
Water / waste water	[%]	100	63.7	87.7	87.9	88.1	85.9	80.2	79.3	86.5

The consumption amounts of water rose due to higher cooling water need in 2016. Drinking water has a proportion of about 1 % at total water consumption here.

The valid limit values to be observed by us with regard to discharge of waste water are governed by municipal waste water rules and decisions of approval.

Our waste water values are defined, additionally to automatic recording of measured values, also by manual sampling.

To confirm our measured values, we have comparative samples taken by an external, independent laboratory, we compare them and report the results to the competent authority.

Indicators		2007	2010	2011	2012	2013	2014	2015	2016
Industrial waste water / annealed products in tons	[%]	100	70.6	78.5	82.1	72.0	72.5	74.6	61.5
Water consumption / annealed products in tons	[%]	100	99.6	96.8	113.1	98.9	83.3	80.9	86.6
Waste water discharge (actual / permitted)	[%]	85.4	53.2	60.8	54.5	67.9	75.9	79.4	66.7
Service water consumption (actual / permitted)	[%]	110.2	84,0*	83.9	84.1	81.9	76.6	75.7	82.5
Annealed products	[%]	100	88	91	78	87	96	98	117

\*Increase of the permitted consumption amount by 15% in 2008

The indicator "Industrial waste water / annealed products" was considerably reduced in 2016 as compared to preceding year. The goal of reduction to 72 % of the amount from 2007 was therefore met. The visualization of water consumption in the annealing facility allows direct comparison of the facilities, or direct implementation of countermeasures in case of above-average water consumption. That contributed to reduction of the necessary process water. On top of that, the production amount rose in 2016, which led to a good utilization and efficiency of the annealing facilities.

The indicator "Water consumption / annealed products" rose in 2016 as compared to preceding year. The cause consisted, among other things, in technical problems at two annealing facilities, which led to considerably increased cooling water consumption. In early 2017, they were successfully eliminated to a great extent and the consumption was adequately reduced.

The indicators "Waste water discharge (actual / permitted)" and "Service water consumption (actual / permitted)" show the margin to the permitted amounts. The actual figures were markedly lower than both amount limitations.



## 6.3 ALSFELD PLANT

At the Alsfeld Plant, water is used mainly for operational purposes as cooling, process and service water.

Based on the available decision of approval, the river water can be taken from the Schwalm, utilized in operation and discharged back to the Schwalm after some treatment.

The service water is first used as cooling water and subsequently as process water.

The treatment of the process water takes place in the waste water treatment plant in form of neutralization and precipitation processes with upstream light fluid separators.

In spite of continuously increasing production amounts, the water consumption and waste water amounts can be kept constant. The goal is to maintain the permitted amounts also in the future.

Due to strict legal regulations for direct dischargers into public waters and to the amount-limited permissions, water and waste water are classified as environmental aspect with high relevance.

Goal until 2016:	Keep the consumption related to "Industrial waste water / annealed products" at less than 35% of the amount from 2007 also in 2016 and 2017
Goal forward projection 2017:	Keep the consumption related to "Industrial waste water / annealed products" at less than 35% of the amount from 2007 also in 2017 and 2018

#### What was implemented in 2016:

- Within the Energy Management, an energy flow diagram was elaborated to represent graphically the process water cycle. The better identification of weaknesses allows system improvements.
- Continuing optimization of the rinsing and cleaning processes for reduction of waste water amount.

#### What was initiated / implemented in 2017:

- Evaluation of the possibility of optimizing the emulsion splitting in washing machines, increasing the bath service life and reducing the waste water amounts
- Sludge removal from the water consumption pond to reduce the necessary backwash water for cleaning of the gravel filter

#### What is planned for 2018 already:

 Attempt for double use of cleaned process waste water.



The year 2007 serves as reference year again.

Input / output water		2007	2009	2010	2011	2012	2013	2014	2015	2016
Water / waste water	[%]	100	65.0	97.7	83.0	82.5	84.7	83.8	77.8	81.4

The absolute consumption amount of water increased slightly in 2016, as compared to 2015. Drinking water has a proportion of about 8 % in total water consumption.

The valid limit values to be observed by us with regard to discharge of waste water are governed by municipal waste water rules and decisions of approval.

The waste water values are defined, additionally to automatic recording of measured values, also by manual sampling. To confirm our values, we have comparative samples taken by an external, independent laboratory, we compare them and report the results to the competent authority.

Indicators		2007	2010	2011	2012	2013	2014	2015	2016
Industrial waste water / annealed products in tons	[%]	100	53.9	36.6	34.5	34.7	31.0	30.9	32.3
Waste water discharge (actual / permitted)	[%]	120,6*	118,4*	98.6	98.9	102,0*	100,2*	94.0	98.0
Service water consumption (actual / permitted)	[%]	96.5	94.8	78.9	79.1	81.6	80.2	75.2	78.4
Annealed products	[%]	100	182	223	237	244	268	252	251

\* Reported to authority

The indicator "Industrial waste water / annealed products" is approximately at the low level of the preceding year in 2016. Therefore, the goal of retention of the indicator could be met. In spite of increasing requirements on cleanness of the screws, we would therefore like to keep such low waste water amounts in 2017 as well.

The indicator "Waste water discharge (actual / permitted)" of the year 2016 is met.



## 7. EESSENTIAL ENVIRONMENTAL ASPECTS AND IMPACTS RELATED TO ENERGY CONSUMPTION

## 7.1 OSTERODE AM HARZ PLANT (PETERSHÜTTER ALLEE 29)

The Osterode Plant acquires the following energy carriers:

- Natural gas for operation of the facilities for surface and heat treatment
- Natural gas for heat supply to buildings and for provision of preheated process water
- Electricity for drive of manufacturing machines and for generation of pressurized air

The energy demand of natural gas and electricity is related immediately to the production amounts and can be reduced only in the long term through process optimization, or investments, respectively.

Based on the cost increases to be expected also in the future, we classify all energy carriers as relevant environmental aspect.

Goal until 2016:	Achievement of the "Energy consumption / ton of products" target value of 80% of the amounts of 2007 in the years 2016/2017
Goal forward projection 2017:	Achievement of the "Energy consumption / ton of products" target value of 80% of the amounts of 2007 in the years 2017/2018

#### What was implemented in 2016:

 Deduction and implementation of measures for energy reduction from the energy assessment carried out

#### Gas consumption

• Attempt for reduction of losses caused by heat radiation through installation of a "temperature emission protective coating" at a heat treatment facility.

#### **Electricity consumption**

- Installation of a hall lighting with LED lamps
- Installation of another hall lighting with LED lamps
- Installation of gas meters at all partial sections of the heat treatment facilities. Targeted energy saving measures can be derived from it.

#### Pressurized air consumption

 Reduction of pressurized air consumption through leakage detection and elimination at pressurized air piping.

#### What was initiated / implemented in 2017: Gas consumption

- Project for optimization of insulation of heat treatment facilities
- Renewal of a heating system
- Inspection of old heating thermostats and replacement as needed

#### Electricity consumption

- Development of other hall lightings with LED lamps
- Expansion of the energy data registration through installation of further meters

## What is planned for 2018 already:

- Continuing installation of LED lighting
- Continuing expansion of the energy data registration through installation of further meters



The year 2007 serves as reference year again. The second part of the table shows the proportions of the energy carriers at total energy consumption.

Energy consumption		2007	2010	2011	2012	2013	2014	2015	2016
Natural gas	[%]	100	100.2	102.5	101.1	114.5	111.9	107.1	103.3
Electricity	[%]	100	80.3	94.6	79.8	82.2	80.6	84.4	75.4
Heating oil	[%]	100	84.8	55.0	47.6	26.8	0	0	0
Proportion of natural gas at total energy consumption	[%]	73.4	77.5	75.4	78.2	80.0	80.3	78.8	80.0
Proportion of electricity at total energy consumption	[%]	25.1	21.2	23.8	21.1	19.6	19.7	21.2	20.0
Proportion of heating oil at total energy consumption	[%]	1.5	1.3	0.8	0.7	0.4	0	0	0

The consumption of natural gas decreased in 2015, as compared to preceding year.

The consumption of electricity decreased, among other things thanks to implementation of LED lamps.

Natural gas, with about 80%, keeps having the highest proportion at total energy consumption.

Indicators		2007	2010	2011	2012	2013	2014	2015	2016
Energy consumption (electricity, natural gas, heating oil) per ton of annealed	[%]	100	98.3	85.9	89.7	91.7	89.9	84.0	85.7

The indicator "Energy consumption per ton of products" could not be improved for the year 2016. The goal of reduction of "Energy consumption / ton of products" to 80% of the amount from 2007 was therefore not achieved.



## 7.2 OSTERODE AM HARZ PRODUCTION PLANT II (AN DER BAHN 163)

The production plant acquires the following energy carriers:

- Electricity for drive of manufacturing machines and for generation of pressurized air
- Gas for heat supply

The energy demand of electricity is related immediately to the production amounts and can be reduced only in the long term through process optimization, or investments, respectively.

The gas consumption is not relevant.

Based on the cost increases to be expected also in the future, we classify the electricity energy carrier as relevant environmental aspect.

Goal until 2016:	Reduction of "Energy consumption / pcs of products manufactured in working process" to 75 % of the consumption of 2010 in 2016/2017
Goal forward projection 2017:	Keep "Energy consumption / pcs of products manufactured in working process" lower than 75 % of consumption of 2010 also in 2017/2018

#### What was implemented in 2016:

- Deduction and implementation of measures for energy reduction from the energy assessment carried out
- Operator training on electricity consumption, "The last one switches the lights off".
- Reduction of pressurized air consumption through leakage detection and elimination at pressurized air piping.

#### What was initiated / implemented in 2017:

 Installation of a hall lighting with LED lamps • Due to wear and tear and increasing leakages in compressed air net, repeated search and elimination of leakages at the compressed air pipes

#### What is planned for 2018 already:

 Due to wear and tear and increasing leakages in compressed air net, repeated search and elimination of leakages at the compressed air pipes

The year 2010 as the first full production year serves as reference year.

Energy consumption		2010	2011	2012	2013	2014	2015	2016
Electricity	[%]	100	114.4	135.8	140.9	145.7	145.4	123.0

The need for electricity decreased due to decreased production amount from preceding year.

Indicators		2010	2011	2012	2013	2014	2015	2016
Pcs of products manufactured in working process	[%]	100	130.6	180.6	184.6	197.2	190.8	169.4
Energy consumption (electricity) per pcs of products manufactured in working process	[%]	100	87.6	75.2	76.3	73.9	76.2	72.7

The specific energy consumption of electricity decreased considerably in 2016, as compared to preceding year. That was caused, among other things, by reduction of the production amount, relocation of machines and the related change of the product / process spectrum.

The indicator "Energy consumption (electricity) per pcs products manufactured in working process" was met in 2016.



## 7.3 HOMBERG (OHM) PLANT

The Homberg Plant acquires the following energy carriers:

- Natural gas for operation of facilities for surface and heat treatment and for heat supply to buildings
- Electricity for drive of manufacturing machines and for generation of pressurized air

The energy demand of natural gas and electricity is related immediately to the production amounts and can be reduced only in the long term through process optimization, or investments, respectively.

Based on the cost increases to be expected also in the future, all energy carriers are classified as relevant environmental aspect.

Goal until 2016:	"Energy consumption / ton of products" should be lower than 105% of the amount from 2007 also in 2016 and 2017
Goal forward	"Energy consumption / ton of products" should be lower than 105% of the
projection 2017:	amount from 2007 also in 2017 and 2018

#### What was implemented in 2016:

- Implementation of further energy consumption measurement through mobile measuring devices e.g. at presses
- Preparation of concept for use of waste heat (e.g. heat recovery from compressors) with registration of heat distribution network and identification of improvement potential
- Expansion of "Acron" energy registration system through installation of new measuring points
- Further optimization of heat exchanger systems at two heat treatment facilities for rise of return temperature of cooling water. The heated cooling water is used in second step as process water. The preceding heating brings reduced energy needs in treatment baths.
- Separation of loop line for compressed air and integration of further meters (structural measure for registration at area level).

#### What was initiated / implemented in 2017:

- Preparation of "Corporate Carbon Footprint" (CO<sub>2</sub> balance of a company) for recording of company-related greenhouse gas emissions generated in upstream processes
- External consultation / concept preparation for potential use of a cogeneration facility
- Holistic consideration of the energy distribution network within production and infrastructure by an external consultant and identification of first potential of energy optimization

#### What is planned for 2018 already:

- Further examination of an identified potential for energy saving within production by an external consultant (continuation from 2017)
- Installation of further electricity meters for department-related recording of consumption
- Installation of LED lighting in pilot (hall) areas



Energy consumption		2007	2010	2011	2012	2013	2014	2015	2016
Natural gas	[%]	100	89.8	90.2	79.9	93.9	100.2	100.2	104.4
Electricity	[%]	100	91.0	96.2	96.5	103.8	104.6	100.9	100.6
Proportion of natural gas at total energy consumption	[%]	79.2	79.0	78.2	76.0	77.5	78.5	79.1	79.8
Proportion of electricity at total energy consumption	[%]	20.8	21.0	21.8	24.0	22.5	21.5	20.9	20.2

The natural gas consumption has slightly risen due to increased production tonnage; the electricity consumption is approximately at the level of the preceding year.

Natural gas has a proportion of about 80 % at total energy consumption and is therefore the main energy carrier.

Indicators		2007	2010	2011	2012	2013	2014	2015	2016
Energy consumption per ton of annealed products	[%]	100	102.0	100.7	107.1	110.5	104.9	102.4	103.9

The energy consumption, particularly the natural gas consumption is primarily related with the operation of surface treatment and heat treatment facilities.

In 2012, during commissioning of a new coating facility, a new process step was installed, which resulted in increased energy need but did not increase the "Annealing tonnage" reference value.

The specific energy consumption in 2016 is approximately at the level of the preceding year. That is, among other things, due to a good use of the heat treatment facilities, to the commissioning of two new heat treatment facilities and to energy savings at heating of service water thanks to double use of cooling water.

Therefore the goal of 105% of the amount of 2007 was met and should continue at lower values also in the following years.



## 7.4 ALSFELD PLANT

The Alsfeld Production Plant acquires the following energy carriers:

- Natural gas for operation of facilities for surface and heat treatment and for heat supply to buildings
- Electricity for drive of manufacturing machines and for generation of pressurized air

The energy demand of natural gas and electricity is related immediately to the production amounts and can be reduced only in the long term through process optimization, or investments, respectively.

Based on the cost increases to be expected also in the future, we classify all energy carriers as relevant environmental aspect.

Goal until 2016:	"Energy consumption / ton of products" should be lower than 59% of the amount from 2007 also in 2016 and 2017
Goal forward	"Energy consumption / ton of products" should be lower than 59% of the
projection 2017:	amount from 2007 also in 2017 and 2018

#### What was implemented in 2016:

- Elaboration of energy flow diagram for graphic representation of all processes.
- Commissioning of a new more economical press that has, among other things, automatic deactivation of electricity and compressed air

#### What was initiated / implemented in 2017:

- Reduction of pressurized air consumption through repeated leakage detection and elimination at pressurized air piping.
- Extension of the "Acron" energy recording system through installation of a new compressed air meter at machines and in piping

#### What is planned for 2018 already:

- Installation of LED lighting in multiple production areas
- Extension of the "Acron" energy recording system through installation of a new measuring points for compressed air and electricity



Energy consumption		2007	2010	2011	2012	2013	2014	2015	2016
Natural gas	[%]	100	126.5	140.2	148.8	159.6	156.2	151.5	149.9
Electricity	[%]	100	114.8	135.4	138.6	144.1	148.9	148.4	152.3
Proportion of natural gas at total energy consumption	[%]	79.0	80.5	79.5	80.1	80.6	79.8	79.3	78.7
Proportion of electricity at total energy consumption	[%]	21.0	19.5	20.5	19.9	19.4	20.2	20.7	21.3

The natural gas consumption is approximately at the level of the preceding year.

Natural gas has a proportion of about 79 % at total energy consumption. Electricity has a proportion of about 21 %.

Indicators		2007	2010	2011	2012	2013	2014	2015	2016
Energy consumption per ton of annealed products	[%]	100	68.1	62.3	61.8	64.1	57.7	59.8	59.9

The specific energy consumption per ton of annealed products dropped markedly in 2010, as compared to 2009. That is related to the commissioning of a new energy efficient heat treatment facility. The trend continued in 2012. In 2016, the specific energy consumption is at the level of the preceding year again.

The goal of reduction to less than 59% from 2007 could just not be met. Therefore it should be continued and achieved through further energy saving measures in next years.



## 8. ESSENTIAL ENVIRONMENTAL ASPECTS AND IMPACTS RELATED TO NOISE AND SMELL (AS DIFFUSE EMISSIONS)

## 8.1 OSTERODE AM HARZ PLANT (PETERSHÜTTER ALLEE 29)

The areas of our production, in which sound power levels of > 80 dB(A) occur, are considered noisy working areas. Noisy areas of > 85 dB(A) are marked with adequate signs and hearing protectors are prescribed for them. Generally, we make hearing protectors freely available to all our employees, even outside the noisy areas.

Our working areas are recorded in a regularly updated noise register. Based on it, target-oriented measures for noise reduction (e.g. encapsulation of individual machines or machine parts) can be defined.

As noise emissions constitute a burden on our employees and inhabitants both from the perspective of environment protection as from medical perspective, noise has been classified by us as environmental aspect with high relevance.

Another noise source, primarily for our neighbourhood, results from the supplier and pick-up truck traffic and from the internal transport activities on roads and yard surfaces. The noise and smell emissions arising in the course of our production are perceived subjectively more or less strongly, depending on the weather situation. Therefore our measures for reduction of noise and smells consider not only the internal KAMAX interests but include also the impacts on the neighbouring residential buildings.

Smells are originated primarily through thermal decomposition of cooling oil in forming and heat treatment of our products. The equipment of the forming machines with new state-of-the-art exhaust air filters was concluded in 2013 already. All forming machines are therefore equipped with new exhaust air filters and no exhaust air is discharged outside over shop roofs any more.

Goal forward projection 2017	Implementation of 5 measures for noise reduction per year at the minimum
	Implementation of 3 measures for smell reduction per year at the minimum (as from 2009)

## What was implemented in 2016:

Noise:

- Further employees from "non-noisy areas" were equipped with adapted hearing protectors.
- Installation of sound-absorbing wall at press NH520.
- Enclosure of supply line at a straightening machine.
- Rehabilitation of the "An der unteren Söse" and "Waagelose" roads and of roads in dispatch area
- Construction of a partition wall between two halls
- Decommissioning of chamber ovens and the related elimination of noise source consisting in cooling fans.
- Reduction of outward noise through closure of wall openings in the area of surface treatment (fan / pump - air washer).
- Flap on bunker ascending conveyor NGW50.
- Noise reduction through repair of fan of heat distribution.

#### <u>Smell:</u>

- Deactivation of chamber ovens and the related elimination of smells.
- External measurement for verification of the implemented measures and possible identification of further smell sources and preparation of emission cadastre.
- Practical test of low volatility cooling oil at thread machines => negative result.

## What was initiated / implemented in 2017: Noise:

- Project for measures derived from noise measurements.
- Plume measurement for ascertainment of smell emissions of the whole plant.
- Lower noise pollution through replacement of hall fans in the forklift repair shop.
- Elimination of compressed air leakages.
- Rehabilitation of paved surfaces in the yard.



Smell:

- Project for measures derived from smell measurements.
- Reduction of cleaning cycles of electrostatic exhaust air cleaning in the pressing shop.
- Optimization of exhaust air washer of the surface treatment facility.
- Testing of low volatility oil at forming machines.

#### What is planned for 2018 already:

Noise:

- Further employees equipped with adapted hearing protectors
- Installation of mobile noise protection walls in the annealing area
- Further noise protection measures at annealing facilities

Indicators		2008	2010	2011	2012	2013	2014	2015	2016
Implemented measures for noise reduction	[pcs]	6	3	5	6	1	3	9	8
Implemented measures for smell reduction	[pcs]	-	5	7	20	8	1	3	3



## 8.2 HOMBERG (OHM) PLANT

The areas of our production, in which sound power levels of > 80 dB(A) occur, are considered noisy working areas. Noisy areas of > 85 dB(A) are marked with adequate signs and hearing protectors are prescribed for them. Generally, we make hearing protectors freely available to all our employees, even outside the noisy areas.

Our working areas are recorded in a regularly updated noise register. Based on it, target-oriented measures for noise reduction (e.g. encapsulation of individual machines or machine parts) can be defined.

As noise emissions constitute a burden on our employees both from the perspective of environment protection as from medical perspective, noise has been classified by us as environmental aspect with high relevance.

Due to missing residential buildings, there is no negative impact on the neighbourhood.

Goal forward projection 2017:	Implementation of 5 measures for noise reduction per year at
	the minimum

#### What was implemented in 2016:

- Installation of damping mats at cylinders of wire reels in the pressing shop
- Further employees equipped with adapted hearing protectors
- Adaptation of drop heights at the washing machine of a heat treatment facility
- Encapsulation of the delivery station of a heat treatment facility
- Adaptation of clocking of a vibration chute of a heat treatment facility for noise reduction
- Two control robots were equipped with new supply lines equipped with a noise protection enclosure.
- A noise protection hood was installed at a packaging facility.
- Rehabilitation of roads

#### What was initiated / implemented in 2017:

- Further employees equipped with adapted hearing protectors
- Further implementation of noise protection measures at two annealing facilities (e.g. partitioning, drop height)
- Rehabilitation of roads
- Installation of a noise protected antechamber for office rooms and of a new noise insulated control room within a production hall

#### What is planned for 2018 already:

- Further employees equipped with adapted hearing protectors
- Installation of mobile noise protection walls in the annealing area
- Further noise protection measures at annealing facilities

Indicators		2008	2010	2011	2012	2013	2014	2015	2016
Implemented measures for noise reduction	[pcs]	16	4	3	6	5	9	7	6

ESSENTIAL ENVIRONMENTAL ASPECTS AND IMPACTS RELATED TO NOISE AND SMELL (AS DIFFUSE EMISSIONS)



## 8.3 ALSFELD PLANT

The areas of our production, in which sound power levels of > 80 dB(A) occur, are considered noisy working areas. Noisy areas of > 85 dB(A) are marked with adequate signs and hearing protectors are prescribed for them. Generally, we make hearing protectors freely available to all our employees, even outside the noisy areas.

Our working areas are recorded in a regularly updated noise register. Based on it, target-oriented measures for noise reduction (e.g. encapsulation of individual machines or machine parts) can be defined.

As noise emissions constitute a burden on our employees and inhabitants both from the perspective of environment protection as from medical perspective, noise has been classified by us as environmental aspect with high relevance.

Due to missing residential buildings, there is no negative impact on the neighbourhood.

Goal forward projection 2017: Implementation of 2 measures for noise reduction per year at the minimum

#### What was implemented in 2016:

- Further employees equipped with adapted hearing protectors
- Installation of damping mats at cylinders of wire reels in the pressing shop
- Sealing rubber at noise protection hoods of presses were repaired or replaced, respectively
- Coating of part chutes at presses

#### What was initiated / implemented in 2017:

- Further employees equipped with adapted hearing protectors
- Coating of vibration chute of a packaging facility

#### What is planned for 2018 already:

- Noise protection wall for the visual inspection area
- Installation of mobile noise protection walls in the annealing area

Indicators		2008	2009	2010	2011	2012	2013	2014	2015	2016
Implemented measures for noise reduction (2 per year at the minimum)	[pcs]	2	4	3	1	2	2	4	5	3



## **STATEMENT OF COMPANY MANAGEMENT ON ENVIRONMENTAL STATEMENT**

This Environmental Statement is passed for

## KAMAX GmbH & Co. KG

and submitted to Dr.-Ing. Wolfgang Kleesiek, an authorized environmental expert, for validation. A review audit was executed parallelly according to DIN EN ISO 14001.

We perform annual comprehensive internal environmental audits, making sure that every area is audited at least once within a three-year cycle. Together with the updated list of the relevant environmental impacts and the data and facts of the last year, the audit reports constitute the basis for management assessment and for forward projection of our environmental program.

All figures and facts shown in this Environmental Statement refer to the closed year 2016. The next Environmental Statement will be published in 2018, reporting the figures and facts of 2017.

On that base, we elaborate annually an environmental statement whose validation takes place together with the certificate supervision according to ISO 14001.

We will submit a new environmental statement in 2018, have it validated by independent environmental experts and make it public.

Homberg (Ohm), date 24.11.2017

Christian Diehl Management of KAMAX GmbH & Co. KG German Operations

Dr. Markus Schiffmann



## $\ensuremath{\textbf{S}}\xspace{\ensuremath{\s}}\xspace{\ensuremath{\s}}\xspace{\ensuremath{\s}}\xspace{\ensuremath{\s}}\xspace{\ensuremath{\s}}\xspace{\ensuremath{\s}}\xspace{\ensuremath{\s}}\xspace{\ensuremath{\s}}\xspace{\ensuremath{\s}}\xspace{\ensuremath{\s}}\xspace{\ensuremath{\s}}\xspace{\ensuremath{\s}}\xspace{\ensuremath{\s}}\xspace{\ensuremath{\s}}\xspace{\ensuremath{\s}}\xspace{\ensuremath{\s}}\xspace{\ensuremath{\s}}\xspace{\ensuremath$

The undersigned EMAS environmental experts Dr.-Ing. Wolfgang Kleesiek (DE-V-0211) and Mr. Markus Grob (DE-V-0363), acting on behalf of the GUT Certifizierungsgesellschaft für Managementsysteme mbH, an environmental expert organization, together authorized for the area of "Manufacture of diverse parts and diverse accessories for motor vehicles (NACE-Code 29.32)", confirm to have assessed that the plant and the whole organization, respectively, as stated in the Environmental Statement 2017 of

## KAMAX GmbH & Co. KG

at the sites

#### in 37520 Osterode am Harz

#### with the outhoused production plant: An der Bahn 163 in 37520 Osterode am Harz

and

#### in 35315 Homberg (Ohm)

and

#### in 36304 Alsfeld

with registration number DE-129-00027, meet all requirements of the Regulation (EC) No. 1221/2009 of the European Parliament and of the Council from November 25, 2009 on the voluntary participation by organizations in a Community eco-management and audit scheme (EMAS).

With the signature of this Statement, it is confirmed that the assessment and validation were performed in full compliance with the requirements of the Regulation (EC) No. 1221/2009,

- the result of the assessment and validation confirms that there is no evidence of noncompliance of the valid environmental regulations,
- the data and figures of the updated Environmental Statement of the organization provide a reliable, credible and faithful picture of all activities of the site within the area stated in the Environmental Statement.

This Statement cannot be equated to an EMAS registration. The EMAS registration can be performed only by a competent authority according to the Regulation (ES) No. 1221/2009. This Statement must not be used as self-standing basis for informing the public.

Homberg (Ohm), date 24.11.2017

Dr.-Ing. Wolfgang Kleesiek Environmental expert DE-V-0211

Markus Grob Environmental expert DE-V-0363

GUT Certifizierungsgesellschaft für Managementsysteme mbH Environmental expert DE-V-0213

Eichenstraße 3b 12435 Berlin-Treptow



## DISCLAIMER

Responsible for the elaboration of the Environmental Statement is the Company Management of KAMAX GmbH & Co. KG.

For further information or suggestions with regard to the Environment Management System please refer to:

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