

## **Contribution of Iskra Avtoelektrika to the sustainable development**

Iskra Avtoelektrika is aware of its responsibility for the preservation of nature from its merciless changes due to unrestrained and non-uniform development. Therefore, it would like to be an environment-friendly company in the sense of ecology, energy, material and economy. In a similar way as many other companies, our company is also confronted with a challenge of how to achieve balance between the aims of a consumer society and the preservation of natural environment. That is how to integrate the economic, social and environmental policy so as to have the lowest impact on the environment and to enable development of future generations, which is one of the principles of the sustainable development. Voluntary approaches including the methodology of Cleaner production, the environmental management system in accordance to the standard ISO 14001 or the upgrading this environmental management system by EMAS system have largely contributed to the improvement of the environmental situation. For a company, they are a challenge and a possibility to improve the process efficiency, increase the utilization of natural resources and reduce the amount of waste and emissions by preventive actions, i.e. by the introduction of innovation techniques in the field of the process optimization, design of cleaner products, reuse of materials and last but not least also by the introduction of the new BAT technologies.

### **Methodology of Cleaner Production**

The Cleaner production concept is one of the already applied voluntary approaches of the companies in order to establish an effective environment protection system. The methodology of Cleaner production is oriented towards control of material and energy production flows and towards optimization of raw materials utilization and creation of savings. This kind of approach supports the intertwining of the environment management system with the analysis of the product life cycle.

Iskra Avtoelektrika was among the first 13 Slovenian companies involved in the project of Cleaner production, which has been conducted for the third successive year under the patronage of the Chamber of Commerce and Industry of Slovenia. Iskra Avtoelektrika joined this project in 2001. At that time the company was in the phase of establishing its environment management system in accordance with the standard ISO14001 and the introduction of the Cleaner production methodology has been of great assistance to us in meeting the requirements of the standard more quickly and easily. The methodologies are similar, both meaning a more systematic and easier approach to the environment management, but the difference is in the results of the Cleaner production methodology, which can be seen within a relatively short time.

The arguments that led us to introduce this methodology were the desire to establish an effective system of environment protection, to lower the impact on the environment, to reduce the environment protection costs, to meet the new legal requirements and directives, and to increase of our company's reputation.

Material flow analysis was the tool that made us possible to find out our weak points inside our production process in terms of ecology and economy. We identified the points where material and energy losses occur and we traced the waste and emissions upstream to their source and in this way, we found the opportunities for improvements that are the guiding star in defining priority goals and/or actions.

We have achieved the majority of our goals already during the Cleaner production project and in one year and a half after its completion. For more extensive goals, especially those relating to financial matters, we have developed a programme that we shall carry out in the next two years.

## ***Applicability of the Methodology of Cleaner Production***

The methodology of Cleaner production is suitable for all industrial sectors and all company sizes. Preventive approach to the solution of environmental problems brings a lot of benefits and savings as regards the rational consumption of energy, water and raw materials, the reduction of waste and emissions, the creation of clean and healthy work environment, the reduction of operating costs, and the creation of an environmentally friendly image of the company. It is of utmost importance that the company can implement pollution prevention and minimization actions in phases by individual parts of the process with regard to its needs and abilities. The methodology principles, which become the integral part of the company's business strategy, concretize the fundamental principles of sustainable development, because in this way the occurrence of new impacts on the environment for future generations are prevented.

## ***Environmental, Economic and Social Effects of the Methodology Implementation***

The results of the introduced methodology are encouraging, because they indicate the realized material and energy savings. The effectiveness of the introduction of the Cleaner production methodology can be proved by concrete improvements in the field of a more rational use of water, energy and raw materials, by reduction of the amount of dangerous waste and replacement of dangerous substances by the environmentally friendly alternatives, by higher tidiness of workplaces and increased environmental awareness of the employees and the wider surroundings. Of even greater importance is the cognition that it is not always necessary to invest a lot of money in improvements but the impact on the environment can be greatly reduced also by better management and by actions incurring minimum costs, quickly repayable and yielding a return.

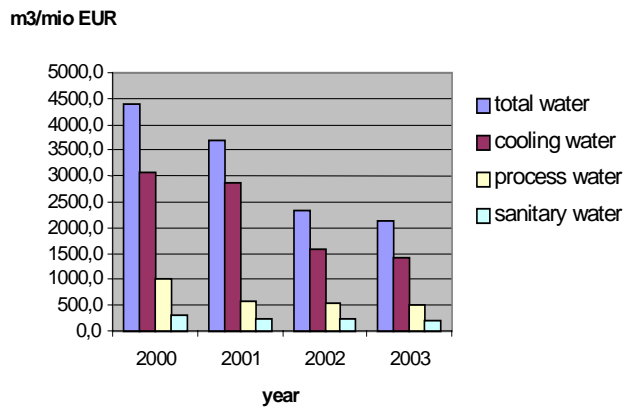
The reduction of costs and the financial savings are the proof that we can create positive economic effects concurrently with the reduction of pollution.

We are proud of the results that we have achieved. On one side they are a stimulus for our further work in this field, and on the other side they are also a small contribution of our company to the improvement of the quality of life of the existing and future generations.

Below, we are presenting the achieved environmental, financial and social effects in the field of the introduction of activities.

## 1. More rational use of water

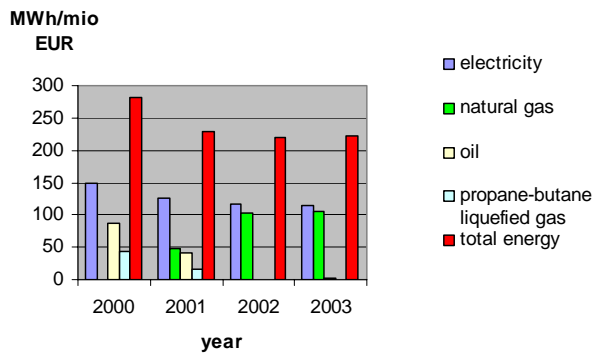
The renovation of the zinc coating and phosphating lines in the years 2000/01 (cascade rinsing, ion exchangers, closed system cleaning plant) has contributed to a significant reduction in the consumption of process water. Reduced consumption of the cooling water is due to the introduction of the new BAT technology, i.e. two impregnating machines with a closed cooling system. In addition to this, organization measures were also taken in the sense of a better control over water consumption and elimination of water leakages and also organization of minor maintenance works. In 2002 compared to 2001, water consumption per unit of sales decreased by **37%**, which yields a saving of **EUR 117,000**. By replacing a water cooled compressor by a screw compressor in the year 2003, the consumption of water per unit of sales will be lowered by **12%**, i.e. a saving of **EUR 31,000**.



Graph 1: Water consumption per unit of sales by years

## 2. More rational use of energy

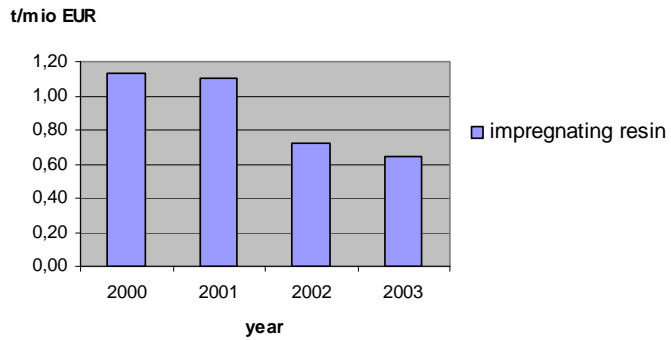
The specific use of electric power in relation to sales has been constantly reducing in the last few years, which is the consequence of better exploitation of natural resources and the consequence of favourable climatic conditions. By abolishing electric heating of electro-plating and phosphating baths and by building a boiler house on propane-butane liquefied gas, which we later on replaced by natural gas, we achieved a considerable reduction in the consumption of electric power. In 2001 in comparison with the previous year, the electric power consumption in relation to sales dropped by **18%**. Because of better efficiency of the screw compressor that in the year 2003 replaced the water-cooled compressor, we shall save **95,000 KWh** of electric power per year, which gives a saving of **EUR 6200**. We shall also reduce the consumption of natural gas by **2%**, since we shall use **221,000 KWh** of waste heat for heating the offices in wintertime, which yields an additional saving of **EUR 5000**.



Graph 2: Energy consumption in relation to the unit of sales by years

### 3. More rational use of raw materials

With the introduction of the new BAT technology – replacement of two old impregnating machines by the new ones, the impregnating resin consumption per unit of sales was reduced by **34 %**, yielding a saving of EUR **128,000** in 2002 compared to the year 2001.

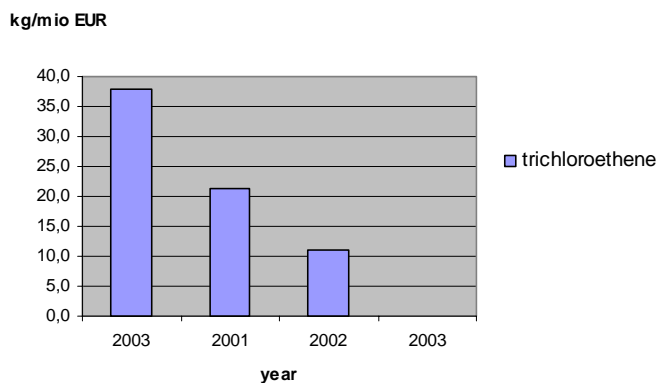


Graph 3: Impregnating resin consumption per unit of sales by years

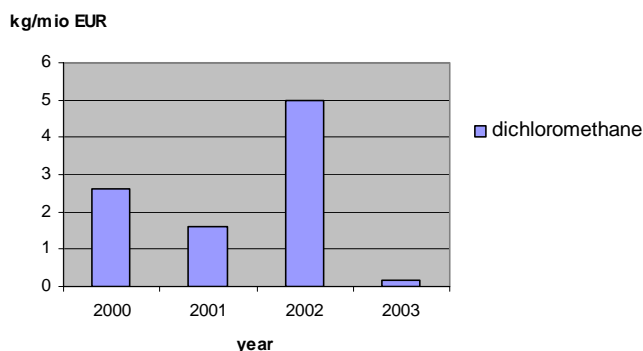
#### 4. Replacement of dangerous chemicals by environment-friendly alternatives

Wherever possible, we are replacing by environment-friendly substances all dangerous chemicals, especially those having a specific impact on the human health, such as carcinogens, mutagens, and reprotoxic chemicals.

Because of the change in technology and the replacement of auxiliary raw materials (soldering paste) in electronics programme, we reduced the consumption of trichloroethene in relation to the sales unit by **48%** in 2002 compared to 2001, which means a saving of **EUR 2000**. In 2003, we completely eliminated the use of trichloroethene after the purchase of a new washing plant that uses a biodegradable cleaner. In 2003, we also replaced the very dangerous solvent dichloromethane, which had been used for cleaning of the impregnating machines, by a cleaning agent based on citrus oils. In this way we lowered the emissions of ozone harmful substances and significantly improved the working conditions of employees.



Graph 4: Consumption of trichloroethene per unit of sales by years

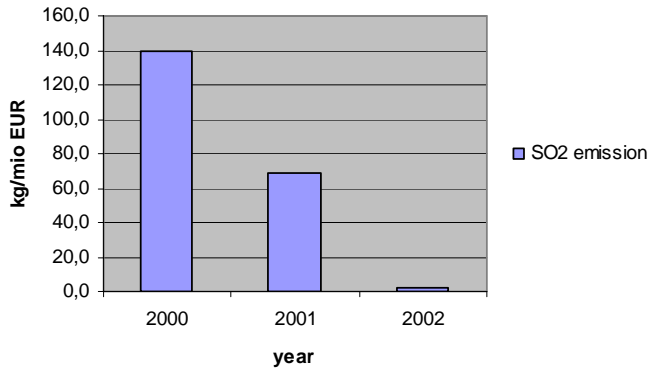


Graph 4: Consumption of dichloromethane per unit of sales by years

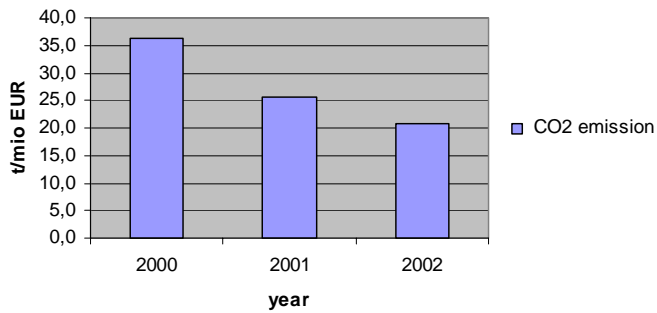
## 5. Reduction of emissions

### 5.1. Emissions to air

The values of regularly controlled emissions of dangerous substances to air are well under the permissible limits. After replacing the medium fuel oil by natural gas, we reduced the emissions of SO<sub>2</sub> per unit of sales by **97%**, and the emissions of CO<sub>2</sub> by **18%** in the year 2002 compared to the previous year.



Graph 5: Annual emission of SO<sub>2</sub> per unit of sales by years

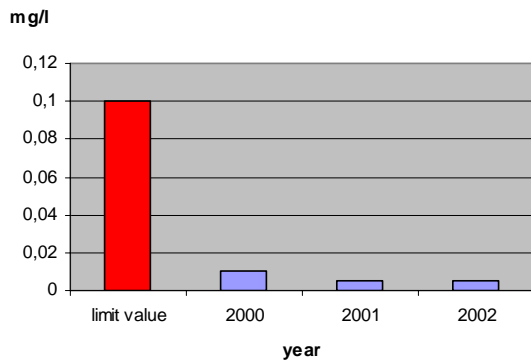


Graph 6: Annual emission of CO<sub>2</sub> per unit of sales by years

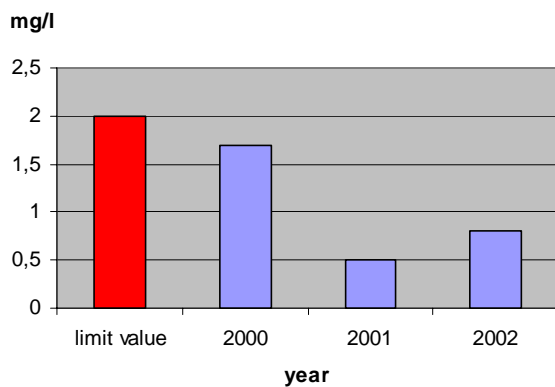
## 5.1. Emissions to water

By the renovation of the zinc coating and phosphating lines, and the cleaning plant in the years 2000/01, we significantly improved the quality of the process wastewater, which can be seen from the graphs given below.

In 2002 compared to the year 2001, we reduced the number of the process wastewater load units by **20%**, which means a saving of **EUR 2900**.



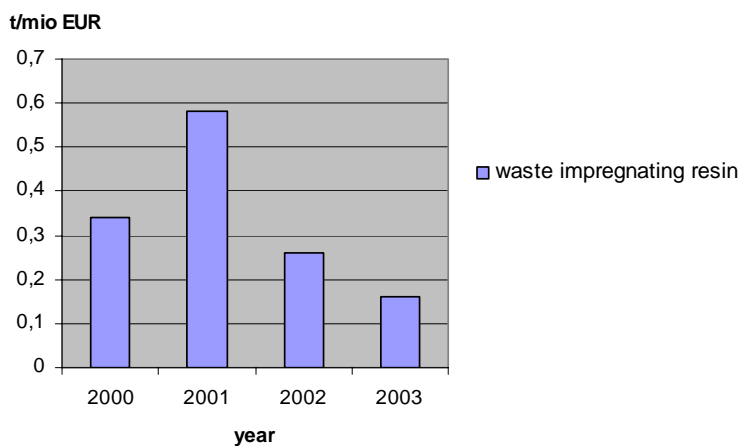
Graph 7: Average value of chrome (VI) in wastewater by years



Graph 8: Average value of zinc in wastewater by years

## 5. Reduction of the amount of waste

We make a great effort to reduce the amount of waste. We began with separate collection and bookkeeping of waste, i.e. we keep records about the type, amount and point of generation of waste. By replacing two old impregnating machines by the new ones, we reduced the amount of waste polyester resin per unit of sales by **50%** in 2002 compared to the year 2001; the saving was **EUR 140,000**. We pay great attention to the correct choice of the type and quantity of packaging, so we are establishing a system of returnable packaging wherever possible. By replacing the non-returnable packaging by the returnable packaging for just one type of impregnating resin, we reduced the amount of dangerous waste packaging by 2600 kg, which indicates that the saving was **EUR 2000**.



Graph 9: Quantity of polyester resin waste per unit of sales by years

## 6. Reduction of noise

In recent years, an effort to reduce noise in natural and living environment has been demonstrated in numerous activities, such as:

- Building of anti-noise protection on the water cooling pump in the hardening shop (2002)
- Insulating of the air-conditioning and ventilating system in the electroplating shop (2003)
- Building of a new closed engine testing laboratory for endurance testing of our products (2002-2003)

## 7. Greater tidiness of work environment

The care for the health of the employees and for the creation of a healthier work environment is reflected also in greater tidiness of workplaces and in better work conditions. Wherever the risk of spillage of hazardous chemicals is present, we have placed in addition to traps also ecological containers with absorbing agents for actions to be taken in case of accidents. We purchased fireproof cabinets for the storage of the chemicals and additional containers for separate collection of waste.

## **8. Environmental awareness and education**

We pay great attention to the environmental awareness of the employees and the wider community. We are aware that the care for the environment begins with each employee; therefore, different approaches are taken. We organize regular environmental education and training and inform the employees about the environment protection achievements by publishing articles in the internal newspaper and presenting the annual environmental report on intranet pages.

Customers, investors, local community, employees and other interested publics – banks, insurance companies are more and more interested in how successful the company is in the integration of economic, social and environmental policies. Therefore, we have established improved environmental communication with the wider local community, with suppliers and customers and state institutions (Chamber of Commerce and Industry of Slovenia) by informing them through our environmental report about our environmental policy, about the results in the environment protection and about our planned environmental programmes. This year we shall for the fourth time address a questionnaire to the local residents to find out their opinion about our impact on the environment. We know that only appropriately informed residents can assess our work correctly, therefore in December 2003 we organized for the first time an Open Door Day under the slogan “Our common environment” to present our environment protection activities. It’s right if our local community, especially our nearest neighbours know our efforts and successes in the preservation of clean environment. In addition to this, our suppliers are also informed about environmental orientations and novelties, and requirements of the Slovenian legislation and European directives. We check their relations towards environment and environment protection by a questionnaire “ Supplier’s relationship towards environment”, which we developed in two languages, and in the assessment of suppliers we take into account also the results of this questionnaire. Our aim is to establish a strong environmental culture of the company that will be present in all activities of Iskra Avtoelektrika and contribute to the development of a wider social culture.