



6A – BACKGROUND MATERIAL

Textbook 6A: Green procurement

6.A.1 Introduction: Purpose of the Volume "Green procurement and hazardous materials"

Environmentally friendly



The textbook of Volume 6 "Green procurement and hazardous materials" is divided into three parts: Textbook 6A deals with green procurement in companies, Textbook 6B focuses on hazardous materials and Textbook 6C provides information on Sustainable Chemicals Management. The goal of Volume 6 is to foster the environmentally friendly and health conscious purchase of raw and process materials as well as other materials.

This volume focuses on the various ways of getting informed about environmentally sound materials and substances and on the prerequisites that have to be met by the company in order to make ecological purchasing possible.

Textbook 6A deals with the following questions:

- ◆ What is green procurement?
- ◆ How can environmental criteria for purchasing be defined?
- ◆ What information sources and procedures for the evaluation of products are available?
- ◆ How can green procurement be organized in the company?
- ◆ How can the necessary measures be implemented in the company?

Green procurement is cleaner production

Purchasing plays an important role in preventive environmental protection. All the environmentally damaging processes and products that have not been purchased will not cause ecological problems later on during their use or disposal. Green procurement is therefore the first step towards the avoidance of waste and emissions, and consequently an important field of action for every CP aware company.



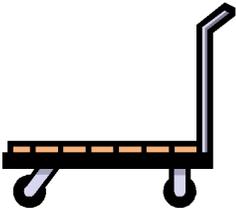
6.A.2 Green procurement – a key to environmentally oriented action

Starting at the source



Green procurement promotes quality

Well planned and systematic action



Successful examples

Environmental protection in a company begins with the selection of machinery and production processes and with the procurement of raw and process materials. Environmental problems are often imported into a company through investments and purchases, but they can be avoided to a large extent by conscientious and goal-oriented procurement.

By making environmentally sound decisions the purchasing department has considerable power to prevent environmental burdens. Measures taken in the purchasing department are at the very source of environmental issues and are therefore extremely effective for the avoidance of problems.

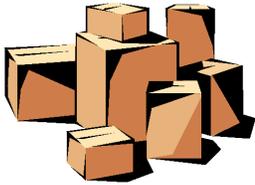
If environmental action is neglected in a company, this could have negative impacts on its image, business success and development opportunities in the long run. A buyer, regardless of whether he works for a large or a small organization, has to be able to count on the quality and reliability of the suppliers and the products procured. This also includes environmental and health criteria.

Just like all other activities in a company which contribute to an improvement of in-house processes, ecologically oriented purchasing requires a systematic and carefully planned approach, which must be reflected in the way purchasing is organized. This is why suggestions for organizational measures have been included in this textbook.

If purchasing is not only limited to the procurement of raw and process materials but also includes investments, it accounts for approximately half of the company's costs. Therefore the scope for intervention with green procurement is large.

The experience gained by CP companies shows the impact of successful green procurement measures. Usually more than one sixth of all measures planned and implemented in the framework of a CP programme focus on the substitution of raw and process materials. Further measures with an impact on corporate procurement are taken as organizational measures (approximately 30% of all measures).

Below some examples illustrate how green procurement contributed to promoting preventive environmental protection in various companies.



- ◆ A dairy company saved approximately 43 t of packaging material per year by changing to lighter plastic cups for yoghurt production. The annual savings amounted to about USD 100,000.

- ◆ The same company changed the external packaging of transport pallets from plastic stretch foil to grid foil. In addition to saving two thirds of packaging material, this change also ensured considerably better cooling effects in the cooling chamber and consequently lower energy consumption.

- ◆ Several car repair companies substituted the disposable seat covers for the protection of car seats from dirt by reusable textile covers.



- ◆ Automobile factories, car repair shops and a painting company achieved a considerable reduction of solvent consumption by using water-based paints with low solvent content.

- ◆ One company was able to save more than 80% of the previously required amount of cleaning agents by substituting traditional detergents with biologically degradable concentrates.

- ◆ An offset printing shop replaced the volatile solvents used to clean printing machines by detergents on organic basis, thus reducing the burden on the environment as well as the health risks for the printers.

- ◆ The heat supply of a large company building was entirely changed from fuel oil to district heating.

- ◆ A dry cleaner replaced the traditional perchloroethylene washing machines by state-of-the-art PER-free machines. In addition, 25% of packaging material was saved by introducing a thinner plastic foil.



Many of the measures related to purchasing do not seem spectacular at first sight. A closer look, however, shows that simple measures can considerably improve the environmental performance of a company. And that is what makes green procurement essential.



6.A.3 What are environmentally friendly materials?

If you want to purchase environmentally friendly products you first have to find an answer to the question: "How can environmentally relevant criteria of a product be discerned?" or "What is an environmentally friendly product anyway?"

Relative environmental friendliness

There are two possible answers. On the one hand, "environmentally friendly" can be understood as a comparative measure. Not the product itself is environmentally friendly, but the term refers to certain advantages with regard to environmental properties **compared** to other products serving the same purpose. A typical example would be copy paper made from recycled paper as opposed to paper made from chlorine-bleached pulp. This first approach therefore focuses on the relative environmental friendliness of a product.

Absolute environmental friendliness

"Environmentally friendly" can also be understood in another sense, i.e. as a description of products and/or services that do not cause any relevant environmental burden ("absolute environmental friendliness"). A bicycle, for example, is an environmentally friendly means of transport. It is certainly possible to compare two different types of bicycles in order to determine the more environmentally friendly one (e.g. material used during production, type of paint, quality, life), but such a comparison involves a rather sophisticated ecological level.

Finding out about environmental properties

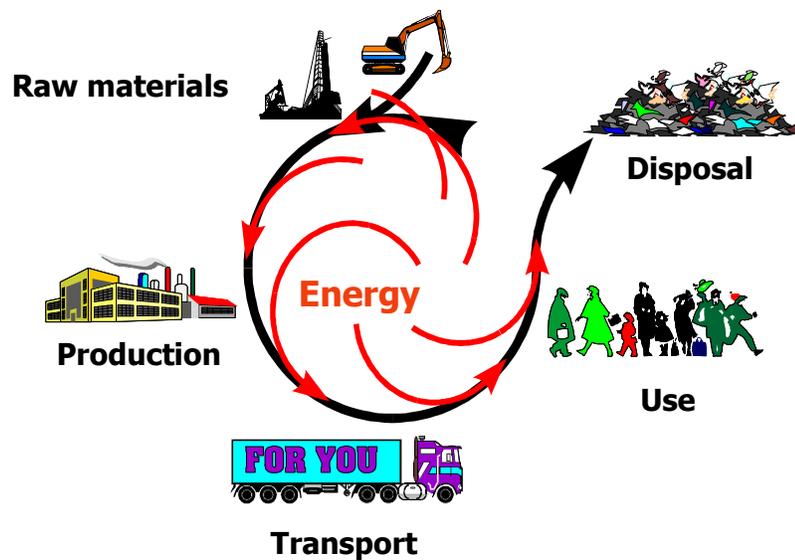
In a company you will usually have to decide on the relative environmental friendliness of products. As a first step, you determine the environmentally relevant purchases made in the company. This task is not always easy, and sometimes it will be nearly impossible to distinguish between the environmental properties of products available on the market. You should, however, as far as possible list those properties of purchased products that are detrimental to the environment in order to lay down criteria for the selection of products.

For the evaluation of products you can use any of the various tools and aids described below, such as eco-labels, eco-awards, certificates or other methods of supplier evaluation.

6.A.4 Life cycle of a product

Consider the whole product life cycle

All the phases in the life cycle of a product – such as extraction of raw materials, production, transport, use and disposal – should be included in the environmental evaluation. The following figure shows the different phases of the life cycle. For each product you have to establish in which phase it produces the largest environmental burdens. This determines your CP strategy.



Generally, it can be stated that the smaller the amount of materials and energy required during the product life cycle the more environmentally friendly the product is. The same applies to the emission of toxic substances and noise.

For many products, the responsible purchasing manager will hardly be able to carry out an overall comparison of all environmental criteria. This procedure is even not always necessary, as the most important environmentally relevant differences can very often be restricted to a few main criteria.

An important distinctive feature in the environmental evaluation of **paints based on organic solvents**, for example, is the proportion of organic solvents. This distinctive feature has, in turn, an effect on other product characteristics, such as the time required for drying.

As far as the evaluation of **insulating material** is concerned, in addition to technical properties, energy consumption during production and the origin of raw materials play an important role in the environmental material assessment.



6.A.5 Eco-labels

Eco-labels are intended to help consumers and/or purchasing managers in the selection of environmentally friendly products. Eco-labels are usually awarded to general consumer products, but, additional eco-labels are also planned for several product groups which are of interest to corporate purchasing.

6.A.5.1 How to use eco-labels for corporate purchasing

Companies can benefit from eco-labels in two different ways. On the one hand they inform the buyer that a product with an eco-label has certain environmental advantages compared to other products. Based on this information the eco-label can have a direct influence on purchasing decisions.

Using the criteria of eco-labels

The second possibility of using an eco-label, or, more precisely, the criteria of an eco-label, is perhaps even more important. In the framework of tenders, companies can use the various criteria for an eco-label as product requirements. These criteria can also be adapted to the individual demands of the company.

6.A.5.2 The Austrian Eco-label

The Austrian Eco-label was introduced in 1990. The eco-label is awarded on the basis of the award guidelines defined by the Federal Ministry of the Environment. The Federal Ministry of the Environment in close cooperation with the *Consumer Information Association (VKI)* develops the award guidelines and awards the eco-label.

Expert committees are in charge of elaborating the criteria for the individual guidelines. These expert committees include representatives from the Federal Ministry of the Environment, business, environmental and consumer associations as well as from the field of science. The participation of these representatives is intended to create the highest possible level of acceptance of the eco-label, both by the business and by environmental and consumer protection organizations. At the moment 550 products in compliance with approximately 44 guidelines are covered in this eco-label procedure.

The products and services which are candidates for the Austrian Eco-label undergo a comprehensive evaluation which must not be restricted to one single criterion.

The award guidelines have to take into account the environmental effects during production and use with regard to:

- ◆ Raw materials used;
- ◆ Energy consumption;
- ◆ Waste and emissions;
- ◆ Distribution systems and transport methods;
- ◆ Disposal and recycling.



Comprehensive product assessment

The quality and performance of the products and services are also assessed (such as handling, safety, ease of repair, service life).

The applicable guidelines of the eco-label are revised at regular intervals and adapted to the state of the art. Compared to other eco-label guidelines, the guidelines of the Austrian eco-label are rather strict.

6.A.5.3 Blue Angel – the German eco-label



The "Blue Angel", the eco-label of the Federal Republic of Germany, was one of the first eco-labels to be established (in 1977). As the relevant guidelines define rather minimum environmental requirements, the high quality of the products to which this label has been awarded is not fully guaranteed. The number of products with the German eco-label is correspondingly high (approximately 4,000 products). For the individual buyer, the "Blue Angel" will in many cases not be helpful when it comes to making a decision as it is awarded to so many products.

Compared to the Austrian Eco-label, which makes no reference to a specific environmentally relevant criterion, the German eco-label points out the main environmental advantage of a product compared to similar ones, e.g. "eco-label because made of 100% recycled paper" or "eco-label because reusable".

Applies to a wide range of products

Despite the obvious shortcomings of the "Blue Angel", the German eco-label can play a role in product procurement, as there are award guidelines for a wide range of products. The criteria can of course be adapted to the requirements of an individual company.

6.A.5.4 The Eco-flower – the eco-label of the European Union



In 1992 the European Eco-label was established. The EU Eco-label focuses on information for private consumers. Under the leadership of individual member states, award criteria are developed in cooperation with industry. The environmental criteria demanded by the European eco-label are rather "soft". To date criteria for 18 product groups have been developed, please find some examples below:

| EU ECO-LABEL | |
|--------------------|-----------------------------------|
| Washing machines | Detergents and washing-up liquids |
| Paper products | Soil conditioners/ameliorants |
| Packaging material | Light bulbs |
| Washing detergents | Insulating material |

6.A.6 Safety-relevant product labelling

Integrated systems: environment, health and workplace safety

Environmental protection, health protection at the workplace and workplace safety are inseparable in the company. It is of great advantage for both environmental protection and the protection of employees when both areas are seen as a unit. Safety in the company and protection of employees' health are closely related to internal environmental protection. If preventive measures are already considered at the purchasing stage, many problems in the company can be avoided – this holds true for environmental protection, worker safety and health. This holistic approach in a company is called Integrated (Management) System and is implemented by many enterprises nowadays.



6.A.6.1 CE marking

CE marking plays an important role in the purchasing of machinery and plants. The following descriptions refer first and foremost to the regulations pertaining to the distribution of machines.

The CE mark on a product shows that this product complies with EU regulations.

Declaration of conformity

In the past, the safety standards of machinery and equipment were strictly controlled by national regulations, but today all products meeting the basic safety requirements of the EU are allowed to be distributed on the market. Any additional approval procedure or inspection of machinery is, to a large extent, no longer applicable. Manufacturers attach a declaration of conformity and a visible stamp, the CE identification, to products which meet the respective EU directives. Despite the CE identification, the manufacturer can decide to meet a stricter product standard or to have its machines inspected. National legislation, however, is not allowed to prescribe such additional inspections and tests.

Unified standards for product safety

Inspections carried out by certified or accredited inspection agencies apply only to particularly dangerous machines (such as circular saws, milling machines, presses, ribbon saws, etc.).

Sign of approval or quality?

The CE mark is not so much a quality label but the prerequisite required for approval of the product in the European Economic Area. The CE identification alone allows only limited conclusions about the quality of the product as the EU directives determine only safety-relevant minimum standards.

Requirements to be fulfilled by the CE identification

The buyer of a machine is thus confronted with the question: "How can I check whether the machine is safe?" This question is of particular importance with regard to the determination and evaluation of risks under labour protection laws. The CE mark can support the decision-making process even if it is not a quality label in the strict sense of the word. The manufacturer of a machine has to meet strictly defined requirements in order to obtain a signed declaration of conformity and attach the CE mark to its product:

- ◆ The manufacturer of the machine (or its authorized representative) has to draw up technical documents including an overall plan of the machine and its control cycles. In order to have the machine verified for conformity with the safety requirements laid down in the EU directives, it must add the necessary detailed plans, calculations and test results.
- ◆ The manufacturer has to prepare a list of the basic requirements in accordance with the Machinery Directive and other technical specifications met by the machine.
- ◆ The procedures and solutions for risk prevention applied during design and production of the machine have to be documented.
- ◆ In cases where the machine was tested by an approved inspection agency, the certificates and reports have to be included in the documentation.
- ◆ In addition to that, reports about in-house inspections and tests of safe assembly and start-up of the machine have to be supplied.
- ◆ The buyer must receive a copy of the operating instructions of the machine.
- ◆ In the case of mass production of machines, the measures taken to ensure conformity of every single product with the requirements of the guideline are to be documented (quality assurance measures).

Based on the information in the declaration of conformity and the operating instructions, buyers can compare the machines of various suppliers. In addition to information on safety aspects, environmental and disposal-relevant criteria can be derived from this information. Thus a comparison of different offers is possible.

6.A.7 Eco-awards for companies and sites



Eco-programmes are helpful

If you want to buy environmentally friendly products or services, it is not only important to pay attention to the products themselves but also to the way in which these products are produced. Generally it is not possible to check at the premises of the supplier whether environmental criteria are observed in the production of products or services. Powerful buyers such as major automobile groups are able to do so and check their suppliers regularly with regard to their quality (also with regard to environmental protection).

Smaller buyers still can use eco-awards and certificates as a criterion for evaluating their suppliers. If a supplier has taken part in an eco-programme and received the corresponding award, it can be assumed that the supplier takes environmental protection into account and strives to improve the eco-services of its company.



Company awards are not indicators of product quality

There is still a certain degree of uncertainty for the buyer even if a manufacturer has been awarded eco-certificates or awards. The criteria for eco-awards or certificates refer mainly to the organizational integration of environmental protection in corporate procedures and/or to the proven implementation of a certain environmental programme. The certificate, however, does not ensure that the products themselves meet environmental criteria. Thus it could be the case that a producer of chlorinated organic solvents may be given an eco-award for its company although these products pose a great risk to health and the environment during production, use and disposal.

There are a number of different programmes and certification procedures for companies. Some are limited to certain lines of industry, others are of a distinctly regional character. Some of these programmes are briefly described below.



Responsible Care

6.A.7.1 Responsible Care

Responsible Care (RC) is an initiative of the chemical industry to ensure health protection, occupational safety and environmental protection. The programme was initiated in 1984 by the Canadian Association of Chemical Companies and has since been adopted by many other national professional chemical associations. The governing principles of responsible care in chemical companies are laid down in a guideline which is implemented by national associations in a Responsible Care programme.

This is the reason why the standards for participating in the Responsible Care programme differ from country to country. In Germany it was – until recently – sufficient to be a member of the German Association of Chemical Industry to be able to use the Responsible Care logo. In Austria, the standards are stricter, so that the RC logo can definitely be seen as a seal of quality of the chemical industry in Austria.

To take part in the Responsible Care programme in Austria, companies have to prove through an external audit that they have consistently implemented the RC guideline. Companies need to have effective environmental protection, safety and waste management concepts. If an external audit carried out by an expert comes to a positive conclusion, the Trade Association of the Chemical Industry awards the Responsible Care certification mark to the company. The validity of the RC mark is limited to a period of three years.

The Responsible Care certification mark is awarded to the company itself and not to products. The Responsible Care logo may only be used by the authorized companies in their corporate correspondence and for general advertising and PR purposes. It may not be used for the advertising of products. The use of the logo on product packaging, safety data sheets and other product information is also prohibited.

RC calls for a comprehensive management concept



Regional programmes

6.A.7.2 ECOPROFIT

At community level ECOPROFIT has become one of the most important industrial site certification schemes for companies in Austria and Germany. This CP programme was developed in the Austrian city of Graz in 1991 and has meanwhile been disseminated all over Austria, in many parts of Germany as well as in many other countries, for example in the Czech and Slovak Republic, Brazil, Colombia, Finland, Hungary, India, Nicaragua, Slovenia, Uganda and the Ukraine.

The criteria for the award are:

- ◆ Approximately one year of training, including the participation in 10 workshops on CP-related topics;
- ◆ Establishment of an environmental team;
- ◆ Definition of an environmental policy;
- ◆ Evidence of the implementation of CP measures (“environmental achievements”);
- ◆ Evidence of an environmental plan for the next year (“environmental programme”);
- ◆ Existence of a waste management plan (including input/output, energy balance, environmental indicators, legal compliance as well as all waste-relevant details);
- ◆ Legal check carried out by the Department of Environmental Protection of the city of Graz;
- ◆ Checklist used by the consultant covering all relevant areas.

In Austria more than 450 companies have been awarded ECOPROFIT certification to date, in Germany already more than 600 companies.

6.A.8 Making good use of eco-awards and certificates



Do not discriminate suppliers

The basic award and certification principles of the eco-awards and programmes described above define more or less strict environmental requirements that producers have to fulfil. If a company or a product has been awarded an eco-award or certificate, a purchaser can assume that the corresponding criteria have been met. It is therefore logical to ask a supplier about any awards or eco-labels for its products or about eco-certificates for its company.

One should, however, make sure not to use these tools in a discriminatory way. All the programmes and quality labels described above are voluntary. A manufacturer can decide not to apply for an eco-award for a certain product or not to have its environmental management system certified, although all the eco-relevant criteria have been fulfilled. An alternative is to ask the suppliers about the measures taken in the field of environmental protection. Basing the selection of a supplier solely on eco-labels or certificates can lead to a distortion of the actual situation.

6.A.9 How to plan green procurement systematically



Organize the company

To ensure successful green procurement, the criteria and selection procedures for purchasing have to be continuously adjusted to the changing demands. In the company itself the necessary organizational framework conditions and procedures have to be laid down. Only if all people involved know who is responsible for purchasing decisions and which criteria are applied, green procurement will function.

In big companies the organization of corporate purchasing is often recorded in a manual. As already mentioned, all companies with a quality management system according to ISO 9001 have written regulations regarding purchasing. The QM element of procurement requires clear guidelines concerning the principles of purchasing, procedures, supplier evaluation and the assessment of the quality of products bought.

A successful purchasing system consists essentially of the four elements shown below:

Analysis of the current situation: Survey of all the products and services purchased and definition of the purchasing criteria:

Who supplies what?

What requirements does the product have to meet?

Collecting product information, assessment of products and suppliers:

How do we select our suppliers and services?

What criteria are decisive for the selection?

Purchasing procedures and organization:

How is purchasing organized?

Responsibilities – Who decides what?

Checking and adjusting procurement procedures:

How do we check and document our purchasing procedures?

What happens with deliveries of defective or damaged goods?

6.A.9.1 Purchasing guidelines – survey of products and determination of criteria

Environmental guidelines for specific circumstances

During the CP project you will draw up the environmental guidelines for the company ensuring that green procurement becomes an important aim of its efforts to protect the environment. If these guidelines exist in written form, they become more binding.

Record all the products the company buys and clarify what requirements the various procured products have to fulfil and how they comply with the environmental requirements of the company (e.g. price, quality, process-specific requirements, etc.).

Environmental criteria defined for products used in offices will be different from the criteria applied to raw and process materials used in production processes, as the latter will have to meet certain technical requirements or fulfil contractual agreements.



Sources of information

6.A.9.2 Collect and evaluate information

Information about the technical and environmental properties of products is essential for the daily work of the company's purchasing manager. Knowing about the properties of products is an important precondition for the evaluation of different products and their comparison.

The main information sources will be product information provided by the manufacturer or the company's supplier as well as any other information concerning the properties, use, handling and disposal of the products in question (e.g. operating instructions, safety and disposal notes, technical notes, application and handling instructions, safety data sheets, etc.).

The various product identifications and eco-labels as well as industrial site certifications can also be used to assess the environmental properties of materials. The list below comprises labels and other procedures to support the purchasing decision:

Simple tools to assess and evaluate products/materials and suppliers

| | |
|---------------------------------------|--|
| Eco-label | Supplier self-auditing |
| Special product labels | Eco-awards for sites |
| CE marks | Declaration of conformity provided by supplier |
| Supplier evaluation model | Auditing by the purchaser |
| Quality certificates | Reference lists of manufacturer |
| Previous experience with the supplier | Cooperation between manufacturer and user |

"Simple products" first

6.A.9.3 Processes of purchasing and procurement organization

If you want to implement green procurement in a company you should start with routine purchases, e.g. office material or detergents. It is most likely that you will soon be successful in these areas – with the support of the persons concerned, if they are involved at an early stage.

Create suitable structures

6.A.9.4 Competencies and responsibilities

The best product evaluation and product selection will be of no help at all, if responsibility for the ordering procedures is not clearly defined.

It is important to involve the environmental representative and the safety expert in decisions on major investments. Unpleasant surprises at a later stage can be avoided if the effects of an investment on health and the environment are included in the decision-making process.

Getting third companies involved

6.A.9.5. Purchasing of services

A problem specific to corporate environmental protection is the purchase of services. In many large companies, cleaning (or parts of it) is outsourced to professional cleaning companies. The contracts should state that third

companies are obliged to provide information about the products used (safety data sheets) and emphasize that products which are environmentally dangerous must not be used or have to be substituted.

6.A.9.6 Monitoring results

You can use the following tools to monitor the effect which the measures taken have on the company. This analysis is important because it enables you to point out the positive effects of the measures and to prevent any negative developments.



- ◆ Identify all environmentally friendly products in the material lists of the company and describe the basic criteria (e.g.: environmental purchase because). Review this material list at regular intervals.
- ◆ Continuously record all eco-relevant procurement procedures in areas where it has not yet been possible to change to alternative materials (e.g. solvents) to find measures for reducing at least their quantities. The most environmentally friendly purchase is the one that is not made at all!
- ◆ If there is a suggestion scheme for employees in the company propose to include ideas concerning the introduction of environmental products.
- ◆ Note the feedback of the company's staff about positive and negative experience with ecologically purchased products and document the feedback.
- ◆ Inform the customers, the company's personnel and the suppliers about the company's guidelines for eco-friendly purchasing (e.g. in the environmental report).