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ECOLABELLING, ENVIRONMENTAL MANAGEMENT AND RELATED ACTIVITIES

Recent developments and their relevance to the leather industry

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Summary

Over the past few years, ecolabelling schemes, environmental management systems and similar environmental initiatives have undergone rapid development. The present report surveys these systems and assesses their impact on the leather industry, especially on leather-exporting companies.

A total of twelve ecolabelling schemes relating to leather and/or leather products are contained in the annexes to the report. Of those, five entered into force in 2000 and a further three in 1999. More schemes are under preparation.

Most schemes concern the environmental impact of leather production in addition to addressing consumer protection issues. Furthermore, many schemes include sets of functional requirements.

In recent years, the International Organization for Standardization (ISO) has developed standards for environmental labels and declarations. Furthermore, a revised regulation for the award of a European Community ecolabel has just been issued.

Environmental criteria as found in ecolabelling schemes also form part of product specifications applied by a number of leather-consuming industries. They also find application in public purchases and tenders.

Many private labels that make unwarranteded environmental claims still abound. Steps should be taken to combat the use of such labels. According to the ISO standards, labels of this kind must be avoided; in some European countries they are already being phased out.

Environmental management systems are enjoying increased acceptance among tanneries and their customers alike. Of the two international standards for environmental management systems that exist, the ISO 14001 standard and the EU eco-management and audit scheme (EMAS) regulation, the former is open to companies throughout the world, whereas the latter applies solely to companies operating in the EU or Norway. Both systems are well co-ordinated with, and bear a high degree of similarity to, each other. EMAS is somewhat broader in scope than ISO 14001. EMAS registration calls for environmental conditions being met not only by the company applying for registration, but also by its suppliers and subcontractors. In the course of time, many automotive companies will insist upon their suppliers having an ISO 14001 certificate themselves.

At least 25 tanneries have obtained ISO 14001 certificates to date; 15 or more are in the process of obtaining certification. One tannery has already secured EMAS registration and three more are preparing for the same.

Life-cycle assessments or the evaluation of the potential environmental impact of a product system from cradle to grave are fundamental features of some ecolabelling schemes and environmental management systems. Since the selection and weighting of impact categories within a life-cycle assessment is based on value-choices and not on science, the assessment has a strongly subjective element. As an evaluation tool, it should thus be handled with caution. In any event, specific features of the life cycle, such as recycling waste leather, will take on greater importance in the future.

International companies are using cross-boundary environmental management to an ever greater degree and it will take on particular importance for leather-exporting companies. In the same vein, governmental regulations governing the amounts of hazardous substances contained in leather are also gaining in importance for leather exporters.

External environmental demands pose a challenge to the leather industry: a challenge which can and must be effectively met.

1. Introduction

In the years since the UNIDO expert group meeting held in Vienna, 12-13 March 1997 (1), measures related to ecolabelling, environmental management, official regulations and other environmental procedures have developed apace. This holds particularly true for the industrialised countries. These developments are bound to bear far-reaching consequences for the tanning industry in the leather exporting countries as well. In both instances, they pose a challenge that calls for an appropriate response.

As a follow-up to the meeting in Vienna, three workshops were held in: Chennai (India) on 23 October 1997; Yogyakarta (Indonesia) on 13 May 1998; and Beijing (China) on 22 November 1998. Among the subjects taken up at the workshops, an outline for an international ecolabel scheme for leather was discussed (see Annex 21).

The present report contains a comprehensive survey of recent developments, the current situation and possible future developments, with special reference to the implications they bear for the leather industry.

Schemes normally referred to as ecolabels fall into two categories: (a) exclusively product-based labelling schemes and (b) schemes based on both production conditions and product properties.

In the strict sense of the term, product-based labels cannot be regarded as ecolabels, since ecological considerations do not fall within the scope of such labels. It would be more correct to describe them as “consumer protection labels” since the criteria on which they are based relate mainly to the supposedly harmful substances contained in the leather.

In the other category, ecolabels in the proper sense of the term, account is also taken of the ecological consequences of the leather production process.

By including the environmental consequences of leather production, such a scheme acts of itself as an incentive to use ecologically sustainable production processes by: (a) helping to enforce existing, usually reasonably strict, environmental legislation and (b) protecting tanneries which have introduced significant environmental improvements against unfair competition. A certificate issued according to this type of scheme may be awarded to tanneries direct. It can be used as a marketing asset and thus help to recoup some of the funds invested in environmental improvements.

Given that no such thing as an “absolutely ecologically sound product” exists, all ecolabelling schemes are necessarily relative in the sense that they focus on products considered less harmful than other products in the same product group. An important feature of all ecolabelling systems is that the criteria governing award of the label must be stricter than or at least as strict as the requirements set in official regulations. A general clause is often included stipulating that production "must comply with any relevant environmental regulations".

Fundamentally, establishing criteria and setting limits must be considered a political question. However, international standards for the elaboration of ecolabelling schemes do exist.

Most ecolabelling schemes also include functional requirements, the basic philosophy being that ecolabels ought not to be awarded to low-quality products.

Consumers today are becoming increasingly aware of "social" or "ethical" values, such as occupational health and safety, animal welfare and child labour. Consequently, parameters of this kind are increasingly common features of ecolabelling schemes and have an impact on product specifications being set by various customers.

The information to be provided by the producer may be based on self-declaration (which has to be presented in a manner that inspires consumer trust) or on certification by an independent third party (often an accredited verifier). The trend is moving towards greater demand for independent verification.

Environmental management systems can be similarly certified according to international standards. However, ecolabelling and environmental management schemes are essentially different. An ecolabelling award refers to a specific product, whereas an environmental management certificate relates to a production site or company as a whole. Over and above insisting on product specifications, some customers demand that their suppliers have a certified environmental management system.

2. Ecolabelling

2.1. General

The Global Ecolabelling Network provides a general survey of ecolabelling activities and competent bodies around the world. The material can be downloaded from the internet (30).

The Global Ecolabelling Network summarises ecolabelling as follows:

- "Ecolabelling (or environmental labelling) is a guide for consumers to choose products and services that cause less damage to the environment.

- Ecolabelling makes a positive statement that identifies products and services as less harmful to the environment than similar products or services used for a specific function.

- Ecolabelling is fundamentally different from the setting of minimum product standards or requirements. The key difference is that ecolabelling is intended to reward environmental leadership".

More often than not, the criteria applied and the limits set in ecolabelling schemes are thus stricter than corresponding official regulations. Furthermore, applying for an ecolabel is quite voluntary. Ecolabelling schemes are revised regularly, typically every third year, thus ensuring that that they remain at the cutting edge of general environmental improvements.

2.2. Ecolabelling schemes of relevance to the leather industry

Twelve schemes relating exclusively or partly to leather and/or leather products, are listed in Annex 2. The schemes themselves are found in extenso in Annexes 3-13 and 18.

A feasibility study on introducing an EU ecolabel for furniture is currently being conducted. A Nordic Swan Label scheme for furniture is also being drawn up, for which most of the criteria have been established. The elaboration of criteria for upholstery leather, however, has been postponed until 2001.

It is also assumed that an ecolabel for footwear will soon be established in the Czech Republic (2).

Of the schemes listed in Annex 2, one (ICT Eco-Tox Label) is based exclusively on self-declaration; all the others involve certification by an independent third party. Three schemes aim at leather properties alone, whereas the remaining schemes also take account of the ecological consequences of leather production, either by using specific criteria or by stating that production must comply with national environmental regulations - or by a combination of both.

Functional requirements are included in eight schemes.

In two schemes (Nos.1 and 6), award of the label is contingent upon compliance with the Washington Convention on Endangered Species (3). In the Dutch scheme for footwear (see Annex 8) it is also stated that “Fur and leather made from the skin of animals specially bred for their skin may not be used in the footwear”.

The Dutch footwear scheme also has “total energy content” as a parameter. It lists in an appendix figures for the energy content of various materials used in the footwear, including upper leather, insole leather, sole leather and leatherboard.

Comments on individual schemes listed in Annex 2 are given below:

No. 4. Lederinstitut Gerberschule Reutlingen. Certificates have been awarded to just over 30 companies, most of the award recipients are tanneries (some of which also manufacture leather products). More recently, a leather garment producer obtained a certificate (4).

No. 5. EU ecolabel for footwear. As at October 2000, the label had been awarded to two shoe factories: one in Italy and one in Spain.

No. 8. The former Öko-Tex Standard 116 for leather has been revoked. In its stead, leather products are to be evaluated according to the general Öko-Tex Standard 100.

The Öko-Tex standard 100 distinguishes between four categories of products:

Category	**Relevant leather products**
I For infants (up to 3 years of age)	Woolskin bed pads
II With skin contact	Gloves, watch straps
III Without skin contact	Leather garments
IV For house fittings and fixtures	Furniture, wall linings

Where leather products are concerned, two sets of limits are problematic: the minimum pH level (4.0 for all categories) and the maximum content of extractable chromium (1 ppm for category I, 2 ppm for categories II-IV in table above).

At a recent meeting, it was decided to change the lower pH limit for leather to 3.5. The chromium limit for leather was not changed.

The Öko-Tex Standard 100 is based exclusively on product properties. Recently, however, an Öko-Tex Standard 1000 has been introduced, comprising a certificate for the maintenance of satisfactory environmental and occupational health conditions during production. In many respects, the Öko-Tex 1000 is similar to the ISO 14001 (see Chapter 4. 1.). The Öko-Tex 1000 certificate is only awarded to companies which have already obtained an Öko-Tex 100 certificate for some of their products.

As at October 2000, 20 Öko-Tex 1000 certificates had been awarded; none of which had gone to leather companies.

No. 9 According to the Austrian scheme for office furniture, neither the use of chrome leather nor that of "hazardous" azo dyestuffs is allowed (see Chapter 8).

As for hazardous substances in leather, the following parameters are included in most schemes: pentachlorophenol, azo dyestuffs generating certain aromatic amines (see Chapter 8), hexavalent chromium and formaldehyde. Limits set for cadmium and pH also form part of some schemes (in fact, the pH value may also be considered a functional parameter).

In one scheme, the SG schedule (see Annex 5), a limit has been set for free glutaraldehyde in leather.

In other schemes, regulation is such that award of a label is made contingent upon certain categories of chemicals not being used during production.

Some schemes include parameters that are inappropriate to leather: primarily, metals such as antimony, zinc or mercury. Most probably, those schemes were initially drawn up for a whole range of materials. That notwithstanding, superfluous testing represents a waste of resources and the costs incurred have to be borne directly by the producer - and ultimately by the consumer.

Any limits cited in ecolabelling schemes or any other regulations should be stated as numerical values. "Zero" limits are meaningless since zero concentrations are never to be found in nature or in industrial products. Similarly, the term "below detection limit" should be avoided, unless a figure for the detection limit is defined. (If necessary, the figure can be adjusted during a general revision of the scheme). Most schemes cite limits in numerical terms.

As for ecological production-related criteria, some schemes simply state that production must comply with environmental regulations (national or local). Water-based finishing is prescribed in some schemes. The EU scheme demands that the tannery waste water be treated (either in the tannery itself or in a communal treatment plant) to obtain a 75% reduction of the COD. The two Dutch schemes set a maximum limit for the discharge of chrome from the tannery at 0.33 kg Cr/ton finished leather or 0.08 kg Cr/ton rawhide. The footwear scheme goes on to stipulate that the tannery waste water must be biologically treated.

The Brazilian scheme sets pH and temperature limits, in addition to specifying concentration levels for BOD, COD, total Cr, sulphide, suspended solids, and settleable solids in the tannery waste water.

The Catalan scheme demands as a minimum compliance with official regulations. Further demands may be made with regard to COD, suspended solids and heavy metals in the waste water.

2.3. International standards for ecolabelling schemes

A revised regulation governing the award of a European Community ecolabel has just been issued (see Annex 15).

In the introductory remarks it is stated that:

“It is necessary to guarantee transparency in the implementation of the scheme and to ensure consistency with relevant international standards in order to facilitate access to, and participation in, the scheme by manufacturers and exporters of countries outside the Community”.

This is borne out by other statements in the introduction reading:

“In the case of SMEs and also product manufacturers as well as service providers of developing countries, the application fee will be reduced by at least 25%”

“In the case of SMEs and also product manufacturers as well as service providers of developing countries, the annual fees will be reduced by at least 25%”.

Further reductions in the annual fee may be granted to applicants who have already received certification under EMAS or ISO 14001.

According to the new regulation, both goods and service may qualify for an ecolabel award.

Life-cycle considerations have to be part of the process of establishing ecological criteria. Details are to be found in Article 3 of and Annexes I and II to the Regulation. Life-cycle assessments (LCAs) must be conducted in accordance with ISO 14040 and ISO 14024 standards, where applicable. (See Chapter 5 for more on LCAs).

The ISO has developed four standards for environmental labels and declarations(5) (6) (7) (8). Environmental labels and declarations are defined simply as “claims which indicate the environmental aspects of a product or service” (5).

The standard ISO 14020 (5) comprises general principles for environmental declarations, formulated as a series of statements with matching “specific considerations”.

ISO 14024, 14021, and 14025 define, and set norms for, three different types of environmental declarations:

Type I (ISO 14024) (7):

An independent third party formulates environmental requirements for a group of goods or services and awards a label, a symbol or something similar, provided that the product in question complies with the requirements laid down. Compliance has to be verified by an independent third party. The classic ecolabelling schemes (Nos. 2, 4, 5, 6, 7, 9, 10, 11 and 12 in Annex 2) belong to this category. (Strictly speaking, schemes Nos. 3 and 8 are not environmental declarations, but relate solely to consumer safety).

Type II (ISO 14021) (6):

Self-declaration of environmental assertions put forward by the supplier of the product without third-party verification. The claims must be substantiated and consequently applied if commercial customers or consumers are to trust them. The ICT Eco-Tox scheme (No. 1 in Annex 2) is an example of this type of declaration.

Type III (ISO 14025) (8):

Declaration, verified by an independent third party, for a product, within categories of parameters determined in advance and based on life-cycle assessments according to the ISO 14040 series of standards (see Chapter 5). The declaration may also contain additional environmental information. This type of declaration involves procuring a large volume of data and is normally too complicated for small and medium enterprises.

To some extent type-III declarations are expected to oust classic ecolabels in business-to-business relations, whereas classic ecolabels will be mainly directed towards final consumers.

However, even in the Scandinavian countries, the EU and the Nordic Swan labels will continue to prevail for the time being, since type III declarations are considered too complicated for general use.

International standardisation of ecolabelling schemes according to ISO standards is important if the creation of technical barriers to trade is to be avoided. Moreover, the aim should be to co-ordinate ecolabelling schemes for individual product groups at the international level, and to phase out those schemes that are only valid at the local or national levels.

The WTO Committee on Trade and Environment (CTE) has published a document entitled “How environmental taxes and other requirements fit in.” (see Annex 17). It provides comments on:

- Ecolabelling and LCAs
- Handling requirements (packaging , recycling and disposal requirements, etc.)
- Environmental changes and taxes

It addresses those aspects with regard to their possibly raising technical barriers to trade. Generally speaking, the objections the document raises are primarily aimed at government and other mandatory measures, especially those directed towards production conditions in the exporting country. The objections raised are not directed

towards voluntary schemes. However, the document can be taken as an argument in favour of all schemes being international to the maximum possible extent.

2.4. Private ecolabelling and unsubstantiated "ecological" claims

The use of unsubstantiated environmental claims must be rejected out of hand. According to ISO standards, assertions such as "environmentally friendly", "green", "natural" and "ecological" should not be used. In the Scandinavian countries, consumers' organisations and other entities agree that labelling and declarations of this kind have to be rooted out, and only authorised labels established according to international standards may be used. Many retail chains which formerly used their own ecolabels have since replaced them with duly authorised labels. The ISO standards state quite categorically that: "Environmental labels and declarations shall be based on scientific methodology that is sufficiently thorough and comprehensive to support the claim"(5)

It is well known that many companies market leather and leather products bearing designations similar to those mentioned above. The most frequent criteria used to substantiate claims that a leather is "ecological" or something similar are that the leather is vegetable tanned, that it is dyed with natural dyestuffs or that it has not been dyed at all (see Chapter 5.2 for the chrome-vegetable issue)

According to Germann: "In future, the use of terms like "eco", "bio" or "natural" in the marketing of leather (products) for commercial considerations only, will be restricted. The increasing amount of information as a result of future research in the field of ecology will be better understood and more accurately interpreted by the public authorities. So, for instance, investigations on ecological balance sheets for different technologies in leather production will enable an environmental assessment in a realistic manner.

Among other things, this will illustrate that neither synthetic tanning or auxiliary agents should be considered as generally "bad" nor natural products as generally "good". All ecological effects resulting from the production of these agents, up to their remaining portions in final products and wastes have to be taken into consideration" (9).

A governmental committee set up in Denmark to study the production of "organic" non-food products, discussed the possibility of leather qualifying for an "ecological' label, since ecologically produced hides are available. However, the committee ultimately felt that given the chemical processes used in tanneries, leather - regardless of the tanning method - should not be labelled "ecological".

3. Customers' environmental demands

3.1. Public purchases

Since 1995, a law has been in force in Denmark obliging official agencies (governmental, regional and municipal) to take ecological properties into consideration in their purchasing policies. The Danish environmental protection agency (EPA) has established guidelines for "ecological purchases" covering several product groups, including upholstered furniture and working gloves.

According to the guidelines for upholstered furniture (1998), “leather ought not to be chrome-tanned”. As justification it is stated that “chromium is a metal injurious to health”. A similar formula was to be found in the original draft guidelines for working gloves drawn up in 2000. However, it proved possible to change the wording in the final version so that leather tanned using high-exhaustion chrome tanning is now accepted. Furthermore, preference has to be given to undyed leather. Hair-save unhairing and utilisation of fleshings are cited as examples of environmentally friendly methods.

The principles governing purchases made in a typical Danish county are given below.

Preference shall be given to:

- Products incurring the lowest possible environmental load during their life-cycles
- Suppliers with an EMAS registration or an ISO 14001 certificate.
- Products complying with an authorised ecolabel scheme.

If none of these criteria apply, Danish EPA guidelines, if any, are used.

3.2. Automotive and footwear companies

Over the years, the automotive companies have made extensive environmental demands with respect to the properties and production of the leather they purchase.

Most European car producers call for non-chrome leather. One company specifies an upper limit of 5 ppm Cr; this means that the tannery also has to eliminate all metal-complex dyestuffs containing chrome. Another company requires that the leather be Öko-Tex certified (see Annex 10). As mentioned in Chapter 2.2, this involves an upper limit of 1 ppm extractable Cr (with an acidic artificial perspiration solution).

Automotive company requirements normally include restrictions on “hazardous” substances, such as a limit on the formaldehyde content of 5-10 ppm. More and more automotive companies require that their suppliers have an ISO 14001 certificate; in some cases, they have set a deadline for the acquisition of the same by 2002 or 2003 (13) (14). Some international shoe companies have set similar product specifications.

4. Environmental management systems

4.1. International standards

Two international standards for environmental management systems (EMS) exist:

(a) The ISO 14000 series, consisting of the two standards ISO 14001 and ISO 14004. The ISO 14004 standard is ancillary to ISO 14001 and contains guidelines on principles, systems and supporting techniques (10) (11).

(b) The EU EMAS regulation.

As defined in ISO 14001, an environmental management system is “the part of the overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing,

achieving, reviewing and maintaining the environmental policy". The EMAS definition is couched in more or less the same terms.

At present, both standards are being revised. Issuance of the revised ISO 14000 standards is scheduled for 2003. It is assumed that the revision will comprise:

a) Close co-ordination between ISO 14001 and ISO 9000: 2000
b) Textual clarification by means of amendments
c) Extension to and improvement of ISO 14004

The inclusion of new requirements or subjects is hardly expected.

The revision of the EMAS regulation is practically complete; that notwithstanding, the revised regulation is only expected to become official in the first half of 2001. However, it can be expected that to all intents and purposes the official version will be identical to the text in the Common Position adopted by the EU Council (see Annex 16).

The most important innovations of the EMAS regulation are:

a) As is already the case for ISO 14000, EMAS registration is going to be open to all organisations, the activities of which have an environmental impact. Both schemes define an "organisation" as "a company, corporation, firm, enterprise, authority or institution, or part or combinations thereof, whether incorporated or not, public or private, that has its own functions and administration"
b) The ISO 14001 standard has been adopted as a requirement for environmental management. This means that when an organisation already has an ISO 14001 certificate, EMAS registration will not entail any duplication. Furthermore, EMAS registration will automatically include ISO 14001 certification.
c) Simpler administrative and economic procedures are going to be introduced for small and medium enterprises.

ISO 14001 is open to organisations throughout the world, whereas only organisations operating in the EU or Norway are eligible for EMAS registration.

The two schemes are closely co-ordinated and bear a great similarity to each other. Both are voluntary; both include a commitment to continuous environmental improvement and reduction of pollution, as well as to compliance with relevant environmental legislation and regulations (more explicitly formulated in EMAS).

In addition to the requirements set for ISO 14001 certification, EMAS registration calls for:

- Verification by an accredited verifier
- An introductory environmental audit (verified)
- A public environmental statement (verified) which has to be updated annually
- Regular validation, at least every third year (verified)

The ISO 14001 certificate relates to the environmental management system as such, whereas EMAS registration relates to the site with ongoing activities. An important feature of the EMAS regulation is that in order to be registered, the organisation (company) "shall consider

…. the environmental performance and practices of contractors, subcontractors and suppliers."

"The organisation should endeavour to ensure that the suppliers and those acting on the organisation's behalf comply with the organisation's environmental policy within the remit of the activities carried out for the contract" (Annex VI to the "Common Position"; see Annex 16 of the present report).

The first ISO 14001 certificates and EMAS registrations were awarded in 1996. Approximately 15,000 "organisations" have since obtained ISO 14001 certificates, most of them in the Far East (more than 3,000 in Japan alone, as well as numerous "organisations" in Korea and the Taiwan province of China) and Western Europe. Relatively few certificates have been awarded in South-east Asia or Latin America, but in both regions the number is growing rapidly. Only very few certificates have been awarded in the United States and equally few in Central and Eastern Europe.

According to the most recent list (12), 2,945 companies are EMAS-registered, of which some two thirds are located in Germany.

In 1999, 107 Danish companies were surveyed as to their experience with environmental management systems (ISO 14001 or EMAS). The main findings were:

1. The systems had been introduced primarily for strategic reasons.
2. In most cases, introduction had yielded savings in terms of resources and environmental costs, in addition to enhancing the corporate image.
3. Implementation of the system had led to a larger scale of improvement than official regulations
4. Implementation had borne consequences upstream (towards suppliers) in 51% of the companies, and downstream (towards customers and/or waste disposal) in 40% of the companies.
5. Requirements set for suppliers:

	Percent of the companies
Provision of information about their environmental practices	77%
Proven compliance with environmental regulations	76%
Operation of an EMS	14%
Operation of a certified EMS	6%

6. The major obstacles to implementation were time and knowledge. Costs were less important.
7. Average implementation costs were in the order of US$ 65,000 (based on a representative sample of all company types and sizes).

As mentioned above, introduction of an environmental management system is a voluntary undertaking. However, more and more customers require that companies operate certified environmental management systems. Many customers lack the time and knowledge needed to conduct a reliable evaluation of the environmental practices of their suppliers or the environmental properties of the products supplied. Consequently, they rely on suppliers they

trust. That trust may come about as result of environmental certificates, ecolabels, reputation or prior experience.

The Danish EPA carried out a study entitled “Eco-labelling and EMAS. Choice or integration?” (1999). The study showed that direct integration of the two systems is infeasible since ecolabelling aims at the product, whereas environmental management systems aim at the enterprise as a whole.

None the less, positive interaction between the two systems is both feasible and desirable. A company finds it easier to apply for an ecolabel if it already has a certified environmental management system. As mentioned above, this is borne out by the fact that applicants for a EU ecolabel enjoy a reduction in the application fee, if they have an ISO 14001 certificate or are EMAS-registered (see Chapter 2.3). An environmental management system makes it easier to control the properties of individual products and emissions from the production processes. It is thus a good basis for proving compliance with ecolabel criteria and limits. It may be advantageous to draw on the same verifier for both systems.

An environmental management system offers a higher degree of certainty in terms of the reliability of the information that the suppliers have to provide in order to demonstrate compliance with ecolabelling specifications. This degree of certainty also extends to the information that the supplier does not use chemicals that are impermissible under the ecolabelling scheme.

On the other hand, ecolabelling is an effective supplement to environmental management because it involves specific environmental demands.

4.2. Environmental management systems in tanneries and their implementation

1995 marked the first award of a certificate for an environmental management system; it went to a tannery in the United Kingdom. The certificate was awarded according to the British standard BS 7750, a precursor of the international ISO 14001 standard. The first tannery obtained an ISO 14001 certificate in 1997.

Today, approximately 25 tanneries in Western Europe are in possession of an ISO 14001 certificate; some 10 more have submitted applications.

A number of tanneries in Africa, India and Latin America are preparing themselves for certification.

In Australia, many tanneries have installed environmental management systems in order to comply with local environmental requirements, reduce costs and ensure safety in the workplace. In all likelihood, they will not seek formal certification unless their customers demand it.

To date only one tannery in the United States, Garden State Tannery Inc., has obtained an ISO 14001 certificate (14). Given the demands being made by the automotive industry (see chapter 3.2), however, it is to be expected that many tanneries, both within the United States and without, will have to apply for certification.

It is also to be expected that other leather-consuming industries will follow the trend and call for ISO 14001 certification.

In Germany one tannery is EMAS-registered, as are two shoe factories.

Unione Nazionale Industria Conciaria (the Italian Leather Manufacturers' Association) undertook a project on behalf of the EU entitled "Pilot project to prepare, promote and aid Italian tanneries' participation in the EC ecomanagement and audit system (LIFE/ENV/IT/136)" (15). In addition to the Italian Leather Institute (SSIP), 11 Italian tanneries each employing 25 to 200 employees participated in the project.

Of the 11 tanneries, 6 had obtained an ISO 14001 certificate prior to the project or achieved certification in the course thereof. Two more are currently applying for a certificate. Furthermore, three of the tanneries that participated in the project are now applying for EMAS registration, two of the latter already have an ISO 14001 certificate.

As part of the project, comprehensive material was compiled in Italian. It comprises background material, manuals and videos about the procedures governing ISO 14001 certification and/or EMAS registration.

The project showed that the costs of introducing an environmental management system varied from tannery to tannery, ranging between some US$ 17,000 and 55,000. The lower figure was considered the most representative. The variation was not due to tannery size. The cost of maintaining the system was estimated to correspond to approximately half the total labour costs of a highly qualified technician (environment manager).

As for benefits, the tanneries point to such gains as resource savings and lower impact levels. However, it is not easy to estimate their economic value; one tannery estimated the gain to be roughly US$ 25,000 a year, to which must be added improvements in the corporate image and in relations with the immediate surroundings: benefits that defy quantification.

The study concluded that:

"The tannery's initial investment in adopting an ecomanagement system in all probability has adequate return-time in itself. What is harder to evaluate is what will occur in actual operation. Here it seems that tannery size is again a crucial factor";

and

"The results have shown that the tanneries [which are] potential candidates for ecomanagement are first of all those with more than 50 employees, while it is harder for those with 25 to 50".

4.3. Environmental reporting

Many companies around the world issue public environmental reports, either on a voluntary basis or in compliance with a mandatory regulation. As mentioned above, these reports are required for EMAS registration.

In Denmark, the issuance of public environmental reports has been mandatory since 1996 for a number of companies, including tanneries. For EMAS-registered companies, special reporting of this kind is not necessary. About 1,000 companies are required to submit reports; some further 200 do so on a voluntary basis. In certain cases, for example companies operating internationally, these reports are comprehensive and verified; they are directed towards customers and environmental authorities around the world.

As from 1999, 300 companies in the Netherlands are required to submit annual public environmental reports. In Norway and Sweden, all companies are required to include environmental information in their business accounts.

The reports must indicate the volume of water, chemicals and energy consumed, as well as the output of liquid, solid and gaseous wastes. Furthermore, pursuant to a bill due to be enacted this year, a description must be given of the company's environmental management systems, subcontractor requirements (if any) and waste handling operations. Any complaints must also be mentioned.

5. Life-cycles and the leather industry

5.1. Life-cycle assessments

A global consensus is developing that members of every individual trade and profession must aim at minimising the environmental impact of their trade or profession, and not merely the impact deriving from the production process itself. Trade must also take steps to guard against its production processes and products creating more general, long-term problems.

As a tool for this specific purpose, a methodology for life cycle assessment has been developed and defined in four ISO standards (16) (17) (18) (19).

A life-cycle is defined as "consecutive and interlinked stages of a product system, from raw material acquisition or generation of natural resources to the final disposal". A life-cycle assessment (LCA) is defined as "compilation and evaluation of the

inputs, outputs and the potential environmental impacts of a product system throughout its life-cycle" (16).

It is further stated that:

"LCA is a technique for assessing the environmental aspects and potential impacts associated with a product, by:

- Compiling an inventory of relevant inputs and outputs of a product system;
- Evaluating the potential environmental impacts associated with those inputs and outputs;
- Interpreting the results of the inventory analysis and impact assessment phases in relation to the objectives of the study."

An LCA studies the environmental aspects and potential impacts throughout a product's life (i.e. cradle-to-grave) from raw material acquisition through production, use and

disposal. The general categories of environmental impacts needing consideration include resource use, human health, and ecological consequences" (16).

An LCA is restricted to environmental impacts; it does not extend to the economic or social aspects of a product.

Before embarking on an LCA, the first step is to define the goal and scope of the study. Guidelines are to be found in ISO Standard 14041 (17).

For example, the objective of an LCA may be:

- For an existing product, minimisation of the environmental impact over the life-cycle by substituting substances, energies and processes.
- For a new product, selection of suitable substances, processes and design.
- In both cases, the results have a bearing on the selection of suppliers.
- For the comparison of a number of existing products, identification of the product with the lowest environmental impact. This may be used, for example, to compare different types of leather or to compare leather, textiles and synthetic materials.

The EU Eco-label Award Scheme (see Annex 15) prescribes that an LCA be used to lay down criteria for an ecolabelling scheme and to determine those categories of products for which an ecolabelling scheme should be established.

Some governments use LCAs to draw up product legislation, including taxes on purchases.

Delineating an LCA depends on the purpose of the analysis. In the case of leather the question is whether analysis should extend back to the cattle breeder or even further.

In an LCA for cured meat, for example, the question arises whether it goes back as far as the fertilisers and pesticides applied to the grazing fields.

The guidelines for the application of LCAs in the EU Eco-label Award Scheme state that:

"For agriculture and forestry, it might not be possible to draw a sharp boundary on a spatial basis between product system and environment. If resources are taken from a natural habitat, then the boundary should be set at the point of collection. In a fully artificial production system, such as glasshouses with glasswool culture, the processes should clearly be within the system boundary. In intermediate cases, the boundary will depend on the intensity of cultivation, on other attributes of the ecosystem affected by cultivation, and on specific aspects of the soil or of the cultivated crop or the wood".

This consideration is relevant - not only for raw hides, but also for vegetable tanning materials.

It is important to bear in mind that selecting and weighting impact categories are based on value-choices, and not on science. "Different individuals, organizations, and societies may have different preferences, therefore it is possible that different parties will reach different ranking results based on the same indicator results or normalised indicator results" (18). The standard stresses that: "All weighting methods and operations used shall be documented to provide transparency" (18).

As ranking and weighting cannot be standardised, any valuation necessarily takes on both a political and scientific dimension. The interpretation must integrate scientific data with political goals set for environmental quality.

One consequence of all this is the risk that an LCA can be biased since, consciously or unconsciously, it is influenced by the interests of the country where the choice and weighting of impacts are made - more often than not the importing countries. An environmental statement from a Japanese company reads: “Impact assessment was conducted using the following categories because they represent indicators that are familiar and understandable to users in Japan ...”. In the WTO document, referred to above (see Annex 17) it is stated that: “Labels following the [LCA] approach are frequently based on criteria that relate to only a few aspects of a process of production or of a product. This creates the potential for unwarranted trade restriction, in particular protectionism in disguise.”

In Denmark, a tax on packaging material is being introduced, based on an LCA conducted by the Danish EPA. The industry contested the results of the LCA, asserting that assumptions made in the LCA were incorrect or unscientifically based. The EPA replied that political priorities had also been taken into account (Berlingske Tidende, 11 October 2000).

5.2. Life-cycle considerations relating to the leather industry

For the leather industry, the importance of life-cycle considerations and the significance of LCAs will undoubtedly increase in the future. Although it is not known how the impact categories will be selected and weighted in future and the consequences that bears for the leather industry, the order of priorities will in all probability differ from that of today.

An LCA for leather, compared to alternative materials, would probably show a positive balance for leather. Consideration would be given to the fact that hides and skins are a renewable resource. Furthermore, they are a by-product of meat production, which, if not used for the production of leather, would give rise to considerable environmental problems.

That notwithstanding, an LCA is an instrument which has to be handled with the utmost caution. As described above, the selection and weighting of impact categories are subjective. Consequently, the conclusions of an LCA hinge on the assumptions made by the person(s) or institution(s) conducting the assessment. It is important that people from the leather trade take an active part in future activities in this field.

LCAs might also play a useful role in providing a well-founded comparison of the environmental impact of different tanning agents and that of the resultant leathers. An ecological comparison between different types of tanning agents, encompassing leather production, waste water, sludge, and leather wastes, has been carried out (20. Chrome tanning has its own advantages and drawbacks, and the conclusion is that the chrome-tanning method must be considered not very harmful in environmental terms.

To date, nobody has ever conducted a complete LCA comparing different tanning methods, ranging from the procurement of raw materials to the disposal of waste products. In an LCA on that scale, the weighting of different impacts would probably have a decisive influence on the findings. With regard to the procurement of tanning material alone, a comparison would have to be made of the environmental impact of chrome-ore mining, the collection of vegetal

material *in natura*, plantation cultures and organic synthesis. These issues would represent but a fraction of the complete LCA.

At the other end of the life-cycle, the issue is waste leather: not only the waste leather generated by the tanneries themselves, but also the waste leather emanating from both leather-consuming industries and the final consumers. In shoe factories, for example, 30% of the leather input ends up as waste (21). As mentioned in Chapter 4.2, two shoe factories have acquired EMAS registration; they are required to oversee the environmental practices of their suppliers.

Ever-increasing demands are being voiced that waste leather and leather products be minimised and recycled. Sooner or later, leather producers will have to contribute to the efforts to comply with these demands.

Recyclability requirements are rapidly increasing, where motor-cars are concerned. An EU directive relating to end-of-life vehicles (i.e. breaking up cars) was recently issued (24). Leather is not among the materials explicitly mentioned in the directive. However, it required that: "Materials and components of vehicles put on the market after 1 July 2003 do not contain … hexavalent chromium…". The Commission has yet to establish maximum concentration values for various substances, including hexavalent chromium.

The directive prescribes increasing recyclability of end-of-life vehicles (80% of the weight to be recycled as of 1/1 2006; 85% of the weight as of 1/1 2015). Probably, this will entail a demand for recyclable leather, possibly non-chrome leather (see Chapter 3.2).

6. Occupational health and safety management

The British Standards Institution has developed two standards for the assessment and certification of OHS management systems: BSI-OHSAS Standard 18001:1999 and 18002:1999 (22) (23). OHSAS 18002 is ancillary to OHSAS 18001 in the same way as ISO 14004 is ancillary to ISO 14001.

The standards have been developed so as to be compatible with the ISO 9001 and ISO 14001 standards, thus facilitating the integration of management systems relating to quality, environmental practices and occupational health and safety.

It is to be expected that ultimately OHS management systems will be certified to the same extent as ISO 14001 or EMAS certification.

7. Cross-boundary environmental management

The Danish Board of Technology, an advisory agency to the Danish Government, recommends that: "The development of a market for products with lower impact on the environment requires that Danish companies and consumers have easy access to information about the environmental properties of individual products. Within the trades mentioned above [one of these is the leather trade], it will be necessary to develop environmental declarations and ecolabelling schemes, preferably internationally standardised, e.g. through United Nations agencies. Furthermore, a governmental purchase and contract policy, rewarding companies which are able to document that they supervise sufficiently their foreign

subcontractors and productions, will increase the market for environmentally favourable products.

Combined with this, aid in the form of training and know-how transfer must be lent in order to ensure that foreign subcontractors comply with the enhanced environmental demands. It would be useful if the (Danish) Government were to support Danish customers in this kind of activities" (25).

In the report, the points of view expressed by the WTO (see Annex 17) are taken into account. It is pointed out that the environmental problems and their order of priority differ from country to country and from region to region. In performing cross-boundary environmental management, due consideration must be given to a country's environmental and social conditions. (Where tanneries are concerned, thought might be given to the discharge of salt with the waste water: a practice that may be dangerous or harmless, depending on geographical conditions).

As mentioned in Chapter 4.1, an EMAS registered company has to ensure satisfactory environmental performance and practices on the part of its subcontractors and suppliers, even those not within the EU.

A Danish, EMAS-registered, textile company, Novotex A/S, has developed a system for evaluating the environmental impact of textile production through the complete life-cycle of cotton as a basis for their production of eco-labelled "Green Cotton®" textiles. The system is ISO 14001 certified. The aim is to obtain quantitative measurements of the environmental impact of each step in the production process, extending right back to the very growing of the cotton itself (26).

The system is used as a tool to evaluate the environmental standards maintained by the suppliers and check whether the companies involved are reducing the environmental impact of their production. The system can also be used to screen potential new suppliers. In the application of the system, the local conditions of the supplier are taken into consideration.

Every supplier linked to the production chain in some way or another has to complete a detailed questionnaire once a year. For each criterion, a score is given, ranging from a cut-off level to a best available technology-level. The questionnaires are followed up by regular audits: for example, every third year.

For their ecolabelled products, the company demands sustainable cultivation of cotton, requiring that the cotton: (a) be handpicked in order to avoid the use of defoliants; (b) contain no pesticide residues; and (c) be grown according to ecolabelling standards for organic food production.

The system calls for a high level of communication and administration. However, the company seeks to minimise the burden on its suppliers, inter alia, by supplying computer-software and helping them with technical know-how as far as possible.

Regular suppliers use the system to establish their own internal systems. They obtain a comprehensive view of their environmental conditions and relations with environmental authorities.

Consumers are becoming increasingly vociferous in their demands with respect to what may be termed "social" or "ethical" parameters, such as occupational safety and health, child labour, low wages and animal welfare. This has a knock-on effect for, importing companies. In the United States, an increasing number of companies have appointed ethics officers to manage their "ethical programmes". In the United Kingdom institutional investors are obliged to publish their (ethical and environmental) code of conduct (if any) governing their investments.

In order to maintain their public image and reputation among consumers, many (especially international) companies have adopted a code of conduct, including requirements being set for their suppliers and preparations being made for contingencies.

A Danish company used to sell footballs that it had made by a subcontractor in a South-east Asian country. A Norwegian TV journalist reported that the footballs were sewn by children. Immediately, the story broke on Danish TV as well. The story was untrue as the Danish company had maintained a close check on its supplier. Nevertheless, it took some months to get the story retracted, by which time people had forgotten all about the footballs. In one country, the Danish company even had to bring the matter before a board of appeal.

After this incident, the company labelled its footballs "guaranteed handsewn by adults", only to have the label pirated by less serious companies.

International auditing companies have developed social auditing systems for companies and they conduct independent audits. For the audits, they use local auditors conversant with local culture and practices, in order to maintain a proper balance between Western norms and local conditions.

8. Mandatory regulations and ecolabelling criteria governing various substances in leather

In the interest of consumer protection, many countries, including the EU as a whole, have established regulations governing the amounts of hazardous substances contained in various materials, including leather. Countries and regions alike have prohibited the production, marketing or import of products containing substances with concentration levels exceeding the limit. Hazardous substances may also be regulated through a ban on their use in production. The substances or groups of substances, regulated in this way by official authorities, are more or less the same as the criteria most often used as in ecolabelling schemes.

Substances, belonging to one or both of these groups are: pentachlorophenol, certain azo dyes, formaldehyde, cadmium and hexavalent chromium.

<u>Pentachlorophenol:</u>

The official limit in the EU as a whole is 1000 ppm (27). However, in most EU countries and in many non-EU countries, the upper limit is 5 ppm (originally established by Germany in 1989).

Azo dyestuffs:

Under certain conditions, some azo dyestuffs can decompose in the organism and generate certain aryl amines that are considered carcinogenic. Maximum limits for these amines (and consequently the corresponding dyestuffs) were initially introduced in some EU countries, the first being Germany in 1997.

The regulation has since been harmonised within the EU as a whole (28). Restrictions have been established for azo dyestuffs which upon decomposition may generate one or more of 21 aryl amines, specified in a list in the directive (see Annex 19).

The upper concentration limit in leather, for example, is defined as follows:

Products with a content of azo dyestuffs, which may generate one or more of the specified aryl amines in an amount corresponding to a concentration of more than 30 ppm (per amine) in the product, are prohibited.

Formaldehyde:

The relevance of the limits set for aldehydes in leather applies to a relatively short period of time subsequent to production since aldehydes taken up in the leather gradually become totally bound in the hide substance. Free aldehydes in leather, however, can very well provoke an allergic reaction.

Official regulations governing the formaldehyde content in various materials are common. In Europe, the Japanese or Finnish guidelines are generally used (maximum limits 60 ppm and 100 ppm, respectively). For various materials or uses, lower limits can be found: as low as 20 ppm.

The Finnish regulation is stricter than appears at first sight. On entry into the country, only one random sample in a shipment is tested by customs. If the formaldehyde concentration in that sample exceeds the permissible limit, the whole shipment is impounded. This means that in practice, the average concentration has to be substantially lower than 100 ppm.

There appear to be no official limits on the concentration of glutaraldehyde in leather.

Cadmium:

In Denmark, the upper concentration limit is 75 ppm in the product. However, concentration figures are no longer particularly relevant since the use of pigments containing cadmium has ceased.

Extractable chromium:

According to an EU directive (29), the maximum content of extractable chromium in leather used in toys has been fixed at 60 ppm (HCl extraction at pH 1.5 and 37ºC).

Hexavalent chromium:

No official regulation has been drawn up to date. Several countries, however, are in the course of drafting a regulation including upper limits for the concentration of hexavalent chromium. Hexavalent chromium content in leather can be relatively simply avoided by means of process modifications.

The use of pigments containing cadmium or hexavalent chromium has been banned. A survey of concentration limits according to some ecolabelling schemes is to be found in Annex 20. The table lists those substances used as criteria in a significant number of schemes.

In some schemes, the expression “below detection limit” is used. The detection limit for aryl amines is normally stated as 30 ppm (the concentration that the EU applies as its limit). The detection limit for hexavalent chromium in leather is 3 ppm Cr (method IUC/18).

In several ecolabelling schemes, the criteria for various substances are not expressed in terms of concentration values, but as “use in the production not allowed”.

Threshold values stipulated in the various schemes vary widely. In most cases, the lowest values are found in the SG and Öko-Tex schemes.

Generally speaking, the limits are no stricter than the corresponding values found in official regulations. In many cases, values at or near the detection limit have been set as limits.

9. Conclusions and recommendations

1. Given the inevitable demand for and development towards a sustainable community in a globalised world as a consequence of greater population growth and increasing consumer awareness world-wide, environmental requirements and regulations are here to stay.

2. However, it is hardly possible to predict in detail the consequences of this trend. In all probability, government and other mandatory regulations will intensify. The future of all voluntary schemes is determined, in the last resort, by the attitude of the final consumers. The ultimate question is whether a sufficient number of consumers are willing to pay higher prices for products declared ecologically and ethically sound. Experience in Western Europe to date shows that some (and not just a few) are so inclined, whereas others are not.

3. As for the future, a qualified guess would be that environmental and social requirements set by large, mostly multinational companies are going to gain in importance. Bogus labelling schemes (using such terms as “nature”) will disappear.

   In all likelihood, not all the ecolabelling schemes used at present will survive. Locally or nationally based schemes have failed to secure broad acceptance and internationally based schemes will gain ground at the expense of more local schemes.

4. Third-party verification, to the extent that it is part of most current schemes, is necessary in order to achieve and maintain credibility.

5. An international ecolabelling scheme for leather and leather products conforming to ISO standards and WTO rules would be of great benefit to the leather industry. An international label would be most useful from the standpoint of exports, whereas a national label scheme may be helpful when dealing with local consumers and coping with local environmental pressure

6. It is important that the leather industry exert to the greatest possible degree influence on environmental developments of relevance to the industry, such as definition of criteria in ecolabelling schemes or value-choices in LCAs. For example, of immediate importance is the chrome issue or an effective response to claims being made by such organisations as PETA. Tasks such as these can only be effectively performed on the basis of close international co-ordination within the leather industry. International organisations, such as ICT or IULTCS, will have an important role to play in this regard.

7. Environmental demands are thrust upon the leather industry from without. They represent a challenge: a challenge that will undoubtedly be met.

   It is important to realise and take advantage of the possibilities these demands open up:

   Production of “ecological” leather and the implementation of a reliable environmental management system are useful marketing assets, including the maintenance of a positive corporate image.

   Competent environmental management goes hand in hand with competent quality management. Both presuppose a high level of production control.

   Environmental management systems facilitate relations with environmental authorities, thus saving money and eschewing problems.

8. In many cases, for example in a tannery cluster, it is useful for a group of tanneries to employ jointly an environmental manager or consultant.

Annex 1

References

1. W. Frendrup: Recent Developments in Ecolabelling with Regard to Leather and Leather Products. Background Paper, UNIDO Expert Group Meeting, Vienna 12-13 March 1997.
2. K. Kolomazník: Communication, IUE Commission Meeting, Barcelona, April 2000
3. Convention on International Trade in Endangered Species of Wild Fauna and Flora. Amended version 1979. The lists of species revised in 2000.
4. NN: Christ mit LGR-Prüfsiegel. Leder- und Häutemarkt 2000, Nr. 3, 20.
5. ISO Standard 14020:1998: Environmental labels and declarations – General principles
6. ISO Standard 14021:1999. Environmental labels and declarations – Self-declared environmental claims (Type II environmental labelling).
7. ISO Standard 14024:2000. Environmental labels and declarations – Type I environmental labelling – Principles and procedures.
8. ISO Standard 14025:2000. Environmental labels and declarations - Type III environmental declarations.
9. H.P. Germann: The developing of tanning in the next 25 years as influenced by legislation. World Leather 1999, Nov, 8-9.
10. ISO Standard 14001: 1996. Environmental management systems – Specification with guidance for use.
11. ISO Standard 14004:1996. Environmental management systems – General guidelines on principles, systems, and supporting techniques.
12. EU Official J. C 222 (3/8 2000)
13. NN: ISO 14001 set to impact on industry. World Leather, August/Sept. 2000, p. 13
14. NN: ISO.ed. World Leather, August/Sept. 2000, p. 78.
15. Report, EU LIFE Project LIFE/ENV/IT/136:“Pilot project to prepare, promote and aid Italian tanneries’ participation in the EC’s ecomanagement and audit system”. Project Manager: Unione Nazionale Industria Conceria (Italy). 1999.
16. ISO Standard 14040: 1997. Environmental management – Life cycle assessment – Principles and framework
17. ISO Standard 14041: 1999. Environmental management – Life cycle assessment - Goal and scope definition and inventory analysis.
18. ISO Standard 14042: 2000. Environmental management – Life cycle assessment Life cycle impact assessment.
19. ISO Standard 14043: 2000. Environmental management – Life cycle assessment Life cycle interpretation.
20. B. Trommer, H.J. Kellert: Ecological Comparison of Various Tannage Types. Leather Dec. 1999, 37; Jan. 2000, 54
21. A. Wilford: Waste in the Shoe Industry – Consequences for the Leather Industry. JSLTC 83, 84-86 (1999). Leather Jan. 1999, 37-40.
22. BSI-OHSAS 18001:1999. Occupational Health and Safety Management Systems – Specification. British Standards Institution 1999.

23. BSI-OHSAS 18002:1999. Occupational Health and Safety Management Systems – Guidelines for the Implementation of OHSAS 18001. British Standards Institution 1999.
24. Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of life vehicles. EU Official J. L 269 (21/10 2000)
25. Danish Board of Technology: Hazardous Technology – Environmental Management through Trade with Developing Countries. Report 1999:5. (in Danish).
26. M.W. Hansen: Crossborder Environmental Management in Danish Transnational Corporations. A survey of crossborder environmental management practices in 153 Danish transnational corporations. Copenhagen Business School, 1997.
27. Council Directive 91/173/EEC of 21 March 1991 amending for the ninth time Directive 76/769/EEC on the approximation of the laws, regulations, and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations. EU O.J. L 85 (5/4-1991).
28. Proposal for a directive of the European Parliament and of the Council amending for the 19th time Council Directive 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations. (Azo Dyestuffs). Commission Document 1999:620.
29. Council Directive 88/378/EEC of 3 May 1988 on the approximation of the laws of the Member States concerning the safety of toys. EU O.J. L187 (16/7 1988).
30. http://www.gen.gr.jp/eco.html

Annex 2

ECOLABELLING SCHEMES FOR LEATHER AND LEATHER PRODUCTS

No.	Country	Organisation	Name	Most recent version	Products	Annex No.
1	International	International Council of Tanners	Eco-Tox Label	1996	Leather	III
2	Indonesia	BAPEDAL (Indonesian EPA)		1996	Sheep and goat skin, garment leather	IV
3	Germany	1)	SG (Schadstoffgeprüft)	1997	leather, fur, and leatherboard	V
4	Germany	Lederinstitut Gerberschule Reutlingen	Test Mark for Leather	1997	Leather and leather products	VI
5	International	European Union	Community Eco-label to Footwear	1999	Footwear	VII
6	Netherlands	Stichting Milieukeur	Certification Schedule Footwear	1999	Footwear	VIII
7	Netherlands	Stichting Milieukeur	Certification Schedule Furniture	1999	Furniture	IX
8	International	TESTEX[2]	Öko-Tex Standard 100	2000	Leather and leather products	X
9	Austria	Bundesministerium für Umwelt, Jugend, und Familie	Österreichisches Umweltzeichen	2000	Office furniture	XI
10	Brazil	Associação Brasileira de Normas Técnicas	Marca ABNT – Qualidade Ambiental	2000	Footwear	XVIII
11	Catalonia	Departament de Medi Ambient	Distintiú de garantia de qualitat ambiental[3)]	2000	Leather products	XII
12	India	Central Pollution Control Board (India)	Ecomark Criteria for Finished Leather	2000	Leather	XIII

1) Prüf- und Schuhforschungsinstitut Pirmasens; TÜV Rheinland Sicherheit und Umweltschutz GmbH; Institut Fresenius
2) International Association for Research and Testing in the Field of Textile Ecology
3) Emblem of guarantee of environmental quality

Annex 14

ECOLABELLING CRITERIA FOR VARIOUS SUBSTANCES IN LEATHER

Scheme (No.)	ICT (1)	Indonesia (2)	SG (3)	LGR (4)	EU (5)	Netherlands Footwear (6)	Netherlands Furniture (7)	Öko-Tex (8)	Austria (9)	Brazil (10)	Catalonia (11)	India (12)
Certain azo dyestuffs[1)]	X	X	X	X	X				X	X	X	X
Benzidine based dyestuffs						X	X					
Dyestuffs with high LD_{50}[2)]						X						
Allergenic disperse dyes			X									
Hexavalent chromium	X		X	X	X	X		X	X[3)]	X	X	X
Pentachlorophenol	X	X	X	X	X			X		X	X	X
Chlorophenols, other than PCP			X									
2,3,5,6-tetrachlorophenol								X				
Formaldehyde		X	X	X	X			X			X	X
Glutaraldehyde			X									
Glyoxal			X									
pH		X	X	X				X		X		X
Volatile organic compounds											X	
Chlorinated volatile substances						X						
Halogenated fire-retardants									X			

ECOLABELLING CRITERIA FOR VARIOUS SUBSTANCES IN LEATHER (CONTINUED)

Scheme (No.)	ICT (1)	Indonesia (2)	SG (3)	LGR (4)	EU (5)	Netherlands Footwear (6)	Netherlands Furniture (7)	Öko-Tex (8)	Austria (9)	Catalonia (Spain) (11)	India (12)
Pesticides[2)]			X					X			
Extractable solids			X								
Extractable (Al+Cr+Ti +Zr)			X								
Total chromium								X			
Cadmium	X		X			X	X	X		X	
Arsenic			X		X	X	X	X		X	
Lead			X		X	X	X	X		X	
Mercury			X			X	X	X		X	
Copper			X			X	X	X		X	
Nickel			X					X			
Cobalt			X					X			
Tin			X					X[4)]			
Antimony			X					X			
Zinc						X					
"Heavy metals" (except chromium)		X									

Notes:
[1)]Azo dyestuffs which may generate specific amines (see Chapter IX). The lists are not identical.
[2)]Specified
[3)]In pigments
[4)]For infants, only

Annex 12a

Summary of Annex 12

Official Journal of the Autonomous Government of Catalonia No 3150 (30/5-2000)

Decree of 9 May 2000 establishing the award of the Emblem of Guarantee of Environmental Quality for Leather Products

Product categories: From semi-manufactured (tanned) leather to final leather products.

Subcategory a): Leather from tanned to finished leather
Subcategory b): Leather products

Leather with hair on/fur is not included.

The award for leather products refers to the leather only, not to other components.

General criteria: The whole manufacturing schedule, from the raw hide through to the final product must ensue in accordance with the relevant legislation.

Functional requirements of the leather:

Tearing load (IUP/8): min. 30 N/mm

Flexing endurance, dry (IUP/20): min. 20,000 flexes

Environmental criteria for the leather:

Content of heavy metals: As, Cd, Cu, Pb: max 10 ppm
CrVI, Hg: max. 5 ppm

1. Waste water from leather production:

   Details must be given of the discharge of COD, suspended solids and heavy metals with the wastewater from the entire leather production process. If the applicant does not carry out the wet operations related to leather production, details have to be provided on all suppliers back to the raw hide stage.

   As a minimum demand, discharge must comply with the regulations set by the competent authority.

2. The amount of (solid) wastes generated per unit produces must be at least 10% less than the average amount over the previous three years.

3. Content of dangerous substances:

   Pentachlorophenol, its salts and esters: max 5 ppm
   Azo dyestuffs generating carcinogenic amines:
   Amines (according to list): max. 30 ppm
   Formaldehyde: max. 150 ppm
   Organic solvents: solvents used must be declared
   Extractable substances: max 1%.

The emblem is awarded on the basis of declarations and verification by an accredited third party.

Annex 19

List of banned aromatic amines
Pursuant to Amendment 19 of EU Directive 76/769/EEC (28)

No.	Name	CAS* No.	EU No.
1	4-aminobiphenyl	92-67-1	202-177-1
2	Benzene	92-87-5	202-199-1
3	4-chloro-o-toluidine	95-69-2	202-441-6
4	2-naphthylamine	91-59-8	202-080-4
5	o-aminoazotoluene; 4-amino-2[1],3-dimethylazobenzene	97-56-3	202-591-2
6	5-nitro-o-toluidine	99-55-8	202-765-8
7	4-chloroaniline	106-47-8	203-401-0
8	4-methoxy-m-phenylenediamine	615-05-4	210-406-1
9	4,4[1]-diaminodiphenylmethane	101-77-9	202-974-4
10	3,3[1]-dichlorobenzene	91-94-1	202-109-0
11	3,3[1]-dimethoxybenzidine, o-dianisidine	119-90-4	204-355-4
12	3,3[1]-dimethylbenzidine	119-93-7	204-358-0
13	4,4[1]-methylenedi-o-toluidine	838-88-0	212-658-8
14	6-methoxy-m-toluidine; p-cresidine	120-71-8	204-419-1
15	4,4[1]-methylene-bis-(2-chloroaniline)	101-14-4	202-918-9
16	4,4[1]-oxydianiline	101-80-4	202-977-0
17	4,4[1]-thiodianiline	139-65-1	205-370-9
18	o-toludine; 2-aminotoluene	95-53-4	202-429-0
19	4-methyl-m-phenylenediamine	95-80-7	202-453-1
20	2,4,5-trimethylaniline	137-17-7	205-282-0
21	o-anisidine; 2-methoxyaniline	90-04-0	201-963-1

*Chemical Abstracts Services

Annex 20

Concentration limits set in ecolabelling schemes

No.		Pentachloro-phenol ppm	Certain Arylamines from azo dyestuffs ppm	Hexavalent chromium ppm	Formaldehyde ppm	Cadmium Cd Ppm
1	ICT Eco-Tox Label	5	50	5		50
3	SG (Schadstoffgeprüft)	0.5	-[3]	-[3]	150/50[2]	0.1
4	Lederinstitut Gerberschule Reutlingen	5	-[3]	-[3]	200	
5	EU Ecolabel to Footwear	5	30	10	150	10
8	Öko-Tex Standard 100	0.5/0.05[2]	20	0.5		0.1
10	Brazil, ABNT	5	30	3	300/75[4]/20[2]	
11	Catalonia	5	30	5	150	
12	India, Ecomark	5	30	3	200	

1) Numbers according to Annex II
2) For infants or children
3) Below detection limit
4) For direct skin contact

Annex 18a

Summary of Annex 18

Brazilian Association for Technical Standards

Criteria for Awarding of Label ABNT-Environmental Quality of Shoes
Provisional version October 1999

Product: Shoes (leather uppers, sole, lining, insole)

General criteria: The whole manufacturing schedule, from the raw hide to the final product, is taken into consideration.

Production, as well as waste treatment and disposal, must take place in accordance with the existing
legislation.

Functional requirements to the leather:

Upper leather:

Tensile strength (bovine leather)	Load at break	Min. 150 N
	Elongation at break	Min. 40%
Tearing load (bovine leather)	Shoe with lining	Min. 35 N
	Shoe without lining	Min. 50 N
Colour fastness to rubbing	Grain side Flesh side, if no lining	{ Min. 3 on the grey scale*
Flexing endurance (dry)		Min 50.000 flexes

*) Number of rubbings not stated

Sole leather:

Abrasion resistance	Max. 400 mm^3
Water penetration	No penetration after 10,000 flexes
Sulphated ash	Max. 3%
Sulphated ash incl. magnesium salts	Max. 4%

Lining leathers:

Tearing load: Min. 30 N

Lining and insole leather:

Colour fastness to rubbing	Dyed:	Dry 100 cycles, min. 4 on the grey scale. Wet 50 cycles, min. 3 on the grey scale. Synthetic perspiration: 20 cycles, min. 4 on the grey scale

Not dyed: Dry 100 cycles, min. 4 on the grey scale
Wet 50 cycles, min, 4 on the grey scale
Synthetic perspiration: 20 cycles, min 4 on the grey scale.

Colour fastness to water Min. 3 on the grey scale.

Environmental criteria for the leather:

1.Waste water from the leather production; measured in the final outlet:

	Limits
PH	6.0-8.5
Temperature	less than 40ºC
BOD_5	40-200 mg/l *)
COD	160-450 mg/l*)
Total Cr	max. 0.5 mg/l
Sulphide	max. 0.2 mg/l
Suspended solids	50-200 mg/l*)
Settleable solids	max 1 ml/l, h.

*) dependent on recipient conditions

2. Content of dangerous substances:

Azo dyestuffs generating carcinogenous amines:
Amines (according to German norms): Max. 30 ppm

Polychlorinated aromates (pentachlorophenol and similar substances): Max 5 ppm.
Hexavalent chromium: Max. 3 ppm
pH: Min. 3.5. Difference figure: Max. 0.7

3. Solid wastes must be controlled and minimised, aiming at a specified goal.

4. Atmospheric emissions must be controlled and minimised.

5. In the shoe factory, at least 75% of the leather input must be utilised.

The label is awarded on the basis of declarations and certification by an accredited third party.