Preparing today *for tomorrow*

Green-Trek

An Introduction to Restricted Substances in Leather Industry

First Edition
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History

The Great Battle of Tanners

Tanner,
Nuremberg 1609 (Wikipedia)

Leather Tanning is one of the oldest crafts known to man. But somehow tanning was considered a noxious and odoriferous trade, even in ancient history, and tanners had to persistently struggle against this notion. Tanneries were often relegated to outskirts of the city and had to face isolation.

Indeed tanning by ancient methods was foul smelling, but with the advent of chrome tanning, the situation improved significantly. Instead of being a handicraft crafted by poor artisans, it became a technology oriented industry, contributing to employment and economy. But soon the tanners had to face a new challenge of waste water discharge. Later part of the last century is witness to the battle of COD and BOD that intensified between the tanners and regulators.

Just when the tanners were beginning to empower themselves with modern water treatment plants, a new challenge emerged. In the last two decades, tanners have struggled to keep pace with the challenge of "Restricted Substances" (RS) – some of them being carcinogens.

This guide is a tribute to the tanning industry and a small endeavor to support tanners in their understanding of "Restricted Substances" and current regulations. The guide also provides a basic knowledge on a few detection techniques and where to look for restricted substances in tanneries and not get caught unawares in the complexity of detection technology & regulations.

Eco Trends

With growing awareness on safety on functional leather products like garments, upholstery and footwear, and to address the new fashion trends, there is an ongoing innovation in mechanical and chemical processing of leather. Also, the safety requirements have been made more stringent in this changing scenario.

At HLC, we can help you meet the requirements of evolving markets with our range of chemicals from wet blue to finish, that comply with latest safety regulations anywhere in the world – be it REACH of Europe or any other. Working with tanneries as their partner, our knowledge of "RS" and their detection techniques, using the latest instruments, can extend this partnership to a new horizon.

Eco Labels

Eco labels are first to react to chemical hazard risk. Usually they have nothing to do with regulatory bodies and are often ahead of legislation. Most represent their self-styled "Restricted Substance" focus list. They are often mistaken by tanners to be a part of regulation. Most eco labels have more to do with textile and apparel and specify very low "total chrome", which makes it difficult for chrome tanned leather to comply. Some in the industry believe that testing for eco labels is more of a commercial gimmickry by a cartel of international test houses.

Challenges ahead Regulatory Bodies

Challenges Ahead

It is a huge challenge for tanners to wade through this cobweb of regulations and customer specifications on Restricted Substances. Many substances in the long list may not have any significance for the leather industry.

Moreover, in some cases, detection techniques are still evolving and vary from lab to lab; take the example of formaldehyde, no two detection techniques produce exactly matching results. The tanner and the chemical supplier, both need to team up to deal with the increasing number and type of restrictions, instead of engaging in a confrontation – often seen when a leather sample fails to pass the test at the customer's accredited lab.

Keeping up-to-date with restricted substance regulations and lists is not easy as new restrictions are being continually introduced by various regulatory bodies / labels. This guide covers prevailing regulations up to Sept. 2013.

Regulatory Bodies

Various national and international bodies set the requirement for Restricted Substances. Even multinational manufactures that source from developing countries make their Sourcing guidelines incorporating prevailing legislation. Most commonly referred regulatory bodies are as below:

REACH-Europe: Registration, Evaluation, Authorisation and Restriction of Chemicals is a legislation of European Union. The Substances of Very High Concern (SvHC), part of the REACH, currently have some 144 substances and is expanded regularly. (More details on Pg 7-11)

EPA-USA: Environmental Protection Agency of USA controls regulations at national level and protects citizens from exposure to hazardous and harmful substances.

China follows national standards like GB 18401 and GB

Dominant Eco Labels

AFIRM: Apparel and Footwear International RSL Management is an association of International brands like Adidas, Nike, Levi Strauss. It's mission statement reads as "To reduce the use and impact of harmful substances in the apparel and footwear supply chain".

JAMA - Japan: The all-powerful Japan Automotive Manufacturers Association stipulates emission standards inside the car: auto upholstery leather must comply with these standards, though some of the JAMA test methods are being hotly debated by Leather suppliers.

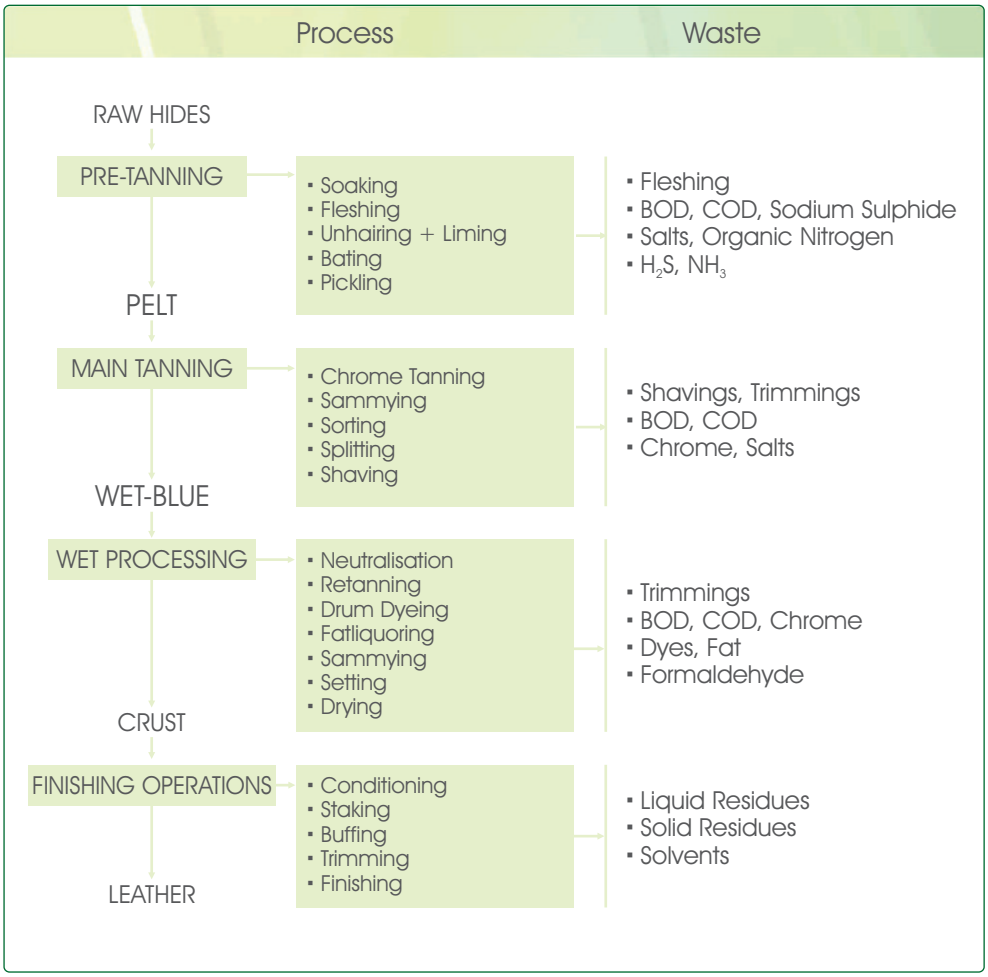
Global Companies: Other global brands like Clarks, ECCO etc. have their internal control list of Restricted Substances even when a regulation doesn't exist.

The limiting levels of certain substances as enforced by these brands are full of anomalies; e.g. cosmetic industry has more liberal formaldehyde limits (300

Where to look for Restricted substances in a Tannery

Typical Process Flow Chart in Leather Production

Pre-tanning > Main Tanning > Wet Processing > Finishing = Finished Leather



Where to look for RS In a Tannery

Stage-wise relation of Banned Substance

Pre-tanning > Main Tanning > Wet Processing > Finishing = Finished Leather

	Category of Restricted Substance	Beamhouse	Tanning	Wet Processing	Finishing
01	Allergenic and Sensitizing Dyes			✓	
02	Aromatic Amines from Azo Dyes			✓	✓
03	Biocides - Pesticides, Bactericides & Fungicides	✓	✓	✓	✓
04	Boron Containing Substances	✓			✓
05	Brominated Flame Retardants				
06	Chlorinated Paraffins - SCCP, MCCP			✓	✓
07	Chromium VI		✓	✓	✓
08	Dimethyl Fumarate				
09	Formaldehyde		✓	✓	✓
10	Heavy Metals				✓
11	N-methyl Pyrrolidone				✓
12	Nonylphenol Ethoxylates (NPEO) and Alkyl Phenols (AP)	✓	✓	✓	✓
13	Organotin Compounds				✓
14	Perfluro Octane Sulfonate (PFOS) - Perfluro Octanoic Acid (PFOA)			✓	✓
15	Phthalates				✓
16	Polycyclic Hydrocarbons (PAH)				

✓ Denotes Possible Presence

For more information on each category of above
Restricted Substances, please refer page 11 - 18

Perkin Elmer GC -FID

Understanding Restricted Substances

This section explains the broad categories of Restricted Substances which are of main concern to tanners:

1. Allergenic and Sensitising Dyes:

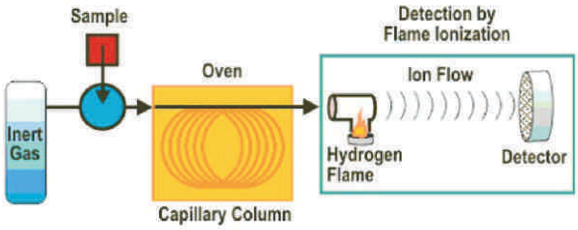
Under this section are represented colouring materials known to have allergenic reaction to human skin on contact. These are mainly disperse dyes, more relevant for textiles; being insoluble in water are not used for dyeing of leather.

At present, HLC is not in the business of drum dyes.

2. Aromatic Amines from Azo Dyes:

Azo dyes constitute the main dying segment for leather. During application under reductive conditions, they tend to produce aromatic amines; 27 of these amines are forbidden in EU regulatory information (1907/2006 - Annex XVII - Appendix 8). Most of these amines are potential carcinogens. Reputed international brands follow a limit of 15 - 30 mg/kg for these carcinogenic amines. EU has set a limit of 30 mg/kg. Test results below this limit are not reliable due to the complex extraction matrix involved.

At HLC all product are tested free from these Aromatic Amines through in-house testing using GC -FID.



Flame Ionisation Detector Schematic

3. BIOCIDES – Pesticides | Bactericides | Fungicides:

Biocides are potentially toxic and include various bactericides and fungicides. Bactericides are normally used in initial stages of leather processing (curing, soaking etc.) while fungicides are typically used from pickling to drying stages. In addition, pesticides used during animal husbandry may also be found in raw skins / hides. In leather industry, Biocides are widely used from raw hides to soaking process, wet end process and even in the finishing process. Also they are usually added in most of the liquid chemicals used in leather processing, such as dyes, fatliquors and casein based finishes etc. But the quantity of biocides/bactericides that goes in leather during fatliquoring & finishing is almost negligible as compared to beam house processing.

Bactericides used in the tannery are essentially non-oxidising and are categorised as Quaternary Ammonium Compounds, Isothiazoles, Thiocarbamates, sulphur containing Heterocyclic derivatives of benzothiazol e.g. TCMTB & Glutaraldehyde. Fungicides include phenol derivatives (ortho-phenylphenol) TCMTB, Carbamates etc. Halogenated Organic compounds like 2-bromo-2-nitro-propane-1,3 diol are restricted. Some of the biocides based on chlorinated or halogenated phenols and many less-biodegradable biocides containing Arsenic, Mercury and chlorinated substances are banned.

Three Chlorinated phenols which were earlier used extensively to prevent mold growth, namely Trichlorophenol (TriCP or TCP), Tetracholorophenol (TeCP) and Pentachlorophenol (PCP) are now banned in consumer products including leather. These substances should not be detected, if tested as per EN 17070 for leather (detection limit – 5 ppm).

HLC has long back freed all of its products from the above Chlorinated Phenols. All the Biocides used by HLC are safe are procured from internationally reputed producers like Thor, Dow etc.

Agilent GC - ECD

4. Boron Containing Substances:

Boric Acid & Disodium Tetra Borate have limited use as far as the leather industry is concerned. Recently REACH has included these as candidates for decision making process on SvHC. Being toxic to reproduction, if they qualify as SvHC, they have to be replaced from many de-liming formulations and as pH / penetration regulating agents from few other products.

HLC does not produce beam house products like de-liming agents. Boron containing substances have already been replaced from all HLC products if they were present earlier.

5. Brominated Flame Retardants:

Generally used in plastics, use of Polybrominated flame retardants have been restricted. But these products being water insoluble are not suitable for wet end processing of leather and *are not added to any of the HLC products.*

6. Chlorinated Paraffins (SCCP, MCCP):

Chlorinated paraffin of chain length C10 - C13 are called short chained chloro paraffin (SCCP) and are restricted to 1% w/w under REACH (EURegulation1907/2006 earlier EU Directive 2001/45/EC). Though, at present, MCCP (C14 – C17) are not restricted but the presence of MCCP needs to be notified in MSDS. SCCP may be present in faliquors or other oil based products like pull up oils etc. In fact, there is still no validated test method available internationally for SCCP in leather but the efforts are on to develop a suitable analytical method for their determination.

All HLC fatliquors / pull up oils comply with the above directives on SCCP / MCCP. A test method using GC-ECD has been standardized with very reliable results; all raw materials and finished products are regularly screened in house using GC-ECD.

7. Chromium VI:

Hexavalent Chromium (Cr-VI), being a carcinogen, has been restricted in EU. Cr-VI is not used directly in leather industry, but if the process is not carefully controlled, part of Cr-III used in leather may get oxidised to form Cr-VI during or after processing. This substance can easily be avoided by adopting an appropriate process by the tanner.

EN 17075 is the official test method for Cr-VI in leather. This method specifies "No Detection" of Cr-VI at the detection limit of 3 ppm. Some eco labels demand maximum 1 or 2 ppm Cr-VI using the same test method - but technically lower detection limits are not justified with this test method.

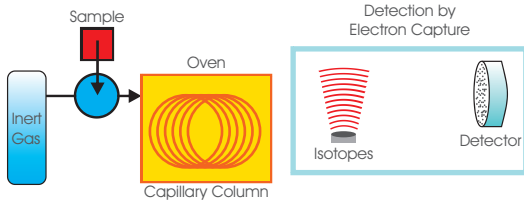
Possible reason of the presence of Cr-VI in leather may be through the use of poor quality BCS or by oxidation of used Cr-III during or after process. Chrome complex dyes can be considered safe in this respect as Cr-VI does not form complex chrome & hence should not be present in these dyes.

HLC has effectively forbidden any chrome based raw material in its plant.

8. Dimethyl Fumarate:

Dimethyl Fumarate is a good anti-fungal agent but it is not used for processing the leather. It is normally used in sachets inside the packing of shoes, boots or other leather products from where it may sublime and deposit on leather. Dimethyl Fumarate is an allergen even in low concentrations and can cause severe skin irritation or rashes hence is banned in EU.

Dimethyl Fumarate finds no use in HLC products.



Schematics - Electron Capture

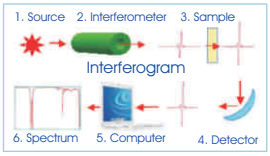
9. Formaldehyde:

Formaldehyde is widely used for producing industrial products. In leather industry it is mainly used for the production of many types of synthetic tanning agents where, after reaction with other ingredients, it forms a polymer and no longer remains free as Formaldehyde - except some residual traces of unreacted formaldehyde in the case of Melamine Syntans.

Presently the Formaldehyde is not restricted in REACH, but many countries & eco labels have fixed some limit on formaldehyde in leather – mostly for leathers which are in constant skin contact. For this purpose Free & Hydrolysable Formaldehyde is measured by water extraction. On the other hand, automobile industry is mostly concerned about the free formaldehyde which emits into the cabin air. Due to this reason, care should be taken while selecting the correct test method for the determination of Formaldehyde. Excepting few grades of melamine syntans, all HLC products are free from "Free Formaldehyde". Our SYNTANS having 50 ppm or less of free formaldehyde are labeled as "Formaldehyde Free". Other syntans having higher presence, if used judiciously in consultation with our technical team, can also be used for the production of leathers which comply with the formaldehyde limits specified by most of the eco labels.

Also of importance is the formaldehyde release potential of products used in leather processing. Many products may be free from formaldehyde, but can release it under the influence of humidity / temperature prevailing in shoes. Test method for the formaldehyde in leather chemicals is still under development (IUC 26). Most of the test houses mistakenly check leather chemicals with ISO 17226, which is the test method for leather and is not very appropriate for testing chemicals.

At HLC all products are screened for Free Formaldehyde using HPLC method which is more reliable than spectrophotometry, deployed by other producers.



10. Heavy Metals:

EU directive on heavy metals has its roots in its earlier legislation for toys. Maximum limits for various heavy metals in consumer products are specified as - As: 25 ppm, Cd: 75 ppm, Total Cr: 60 ppm, Hg: 60 ppm, Pb: 90 ppm, Sb: 60 ppm, Ba: 1000 ppm, Se: 500 ppm by EN 71-3 method. Specifications from some Eco labels are sometimes lower than these limits and normally they also specify total metal content.

For leather, limit for total Cr mentioned above may be difficult to achieve due to chrome tanning. It is usually relaxed for leather by some labels as they are normally concerned only about the presence of Cr-VI. The pH of extraction is important while determining total chrome - many eco labels commonly accept ISO 105 – E 04 as the method which specifies the extraction at pH 5.5. However, EN 71-3 specifies the extraction at pH 1.0 – 1.5 at which it is more difficult for leathers to comply.

At HLC, there is complete restriction on using any of the mentioned heavy metals or their compounds as raw material. Suppliers' declarations are often validated by HLC using Atomic Absorption Spectrophotometry (AAS).

11. N-Methyl Pyrrolidone:

N-methyl Pyrrolidone, normally known as NMP is a high boiling solvent which also finds its use as a flow improver in many finishing formulations for leather. Though earlier, NMP was widely used for the said purpose, especially in PU dispersions, but now its use in formulations has been restricted to 0.1% by REACH, above which it should be listed in MSDS. For automotive leathers, NMP is totally banned by most of the brands.

HLC has successfully removed NMP from all its products / PUDs and has replaced it with new generation of solvents.

12. Nonylphenol Ethoxylate and Nonylphenol:

In chemical preparations for leather (or textiles), use of Nonylphenol (NP) & Nonylphenol Ethoxilate (NPEO), normally generalized as Alkyl Phenols (AP) & Alkylphenol Ethoxilates (APEO), has been restricted by EU to the limit of 0.1% w/w. Some eco labels specify less than 100 mg / kg as their limit in leather. Alkyl Phenol Ethoxylates, especially Nonyl Phenol Ethoxylates are considered to be very toxic for aquatic life. Being bio-accumulative and mutagenic in nature, these substances pose a great problem for water treatment and discharge of waste water into surface waters like lakes and rivers etc.

AP and APEO are everywhere: they're in canned foods and couches, paint and spot cleaners. They're in the dust in our homes, our blood and urine, in breast milk and in the cord blood of newborns. In leather industry they are used as detergents, as soaking / degreasing agents and also in many formulations as emulsion stabilizers. Concentrations of AP and its parent compound APEO has been measured worldwide in surface waters, sediments, sewage, the atmosphere, aquatic organisms, and even in typical human food products. Most disturbingly, the concentrations of APEOs are on the rise. The U.S. EPA has noted rising levels of NP/ NPEO in water samples taken from streams and rivers throughout the U.S.

Apart from the process chemicals, tanners should also be careful about the presence of APEO in the process water, as due to their wide spread use in past and low biodegradability, it is possible that APEO is present in their water supply itself.

At HLC, APEO's are not used as intentional ingredients in any of our products, nor are they generated during the manufacturing processes. We strictly monitor our raw materials and final products for compliance with legal requirements using in house test equipments.

13. Organotin Compounds:

Use of MBT, DBT & TBT (Mono, Di & Tributyltin) is restricted by REACH to 0.1% w/w as SVHC. These products mostly find their use as antimicrobials in few industries like paint industry. Organotin Compounds are also used as catalysts for the production of polyurethane which are used for the finishing of leather. Though they may be present in traces in these products, their quantity used is well below the 0.1% limit specified by REACH. Moreover, remaining traces, if present in finishing products, get fixed on application and hence these products can be used safely for the finishing of REACH compliant leathers.

All HLC products are certified free from MBT, DBT & TBT.

14. Perfluorooctane Sulfonate (PFOS) / Perfluorooctanoic Acid (PFOA):

Because of their persistent bio-accumulative nature, some fluoro-chemicals like PFOS or PFOA have been restricted in consumer products. As per EU regulation, for consumer goods, the limit is 0.005% w/w. Highly reliable analytical method for their testing is rather complicated & is still under development.

HLC does not offer any product based on Flouro Chemicals and in particular based on PFOS or PFOA.

15. Phthalates:

Phthalates mainly find their use as plasticizers for nitro cellulose, where they impart much needed flexibility to the coated films. Under REACH, six types of Phthalates namely Dibutyl Phthalate (DBP), Diisodecyl Phthalate (DIDP), Benzyl Butyl Phthalate (BBP), Diisononyl Phthalate (DINP), Di(2-Ethylhexyl) Phthalate (DEHP) & Diisononyl Phthalate (DNOP) are restricted to 0.1% w/w individually. But the combined limit of all Phthalates is pegged at 0.05% by some brands / labels for shoes.

These restricted phthalates have been replaced long back from all the HLC products. The current range does not contain these substances.

16. Polycyclic Aromatic Hydrocarbons (PAH):

There is no use of PAH for leather or leather chemical industry; these are mostly used as economical plasticisers for rubber / plastics.

All the HLC products are free from PAH.

It may be noted that "100% free" (absolute free) is a misconception. "Detection Limit" implies the limitation of detection techniques and should not be confused with "requirement". The requirement is often specified by the regulatory body or various eco-labels.

ECHA and REACH

What is ECHA:

Chemical products surround us - they are vital in the production of anything from cleaning products to our clothing and even TV sets. They are essential to our economy and have a direct effect on our well-being, but not all their hazards have yet been adequately understood or controlled.

The European Chemicals Agency (ECHA) is the driving force in implementing the EU's groundbreaking chemical legislations for the benefit of human health and the environment. More details about ECHA can be found at http://echa.europa.eu. The two main legislations of ECHA are REACH and CLP.

REACH - [Registration, Evaluation and Authorisation of Chemicals] is one of the most comprehensive and farreaching piece of environmental legislation to come out of ECHA / European Union. Almost no products or materials are out of scope of this legislation. Through the REACH Regulation, companies are responsible for providing information on the hazards, the risks and also the safe use of chemical substances that they manufacture or import. Companies register this information with ECHA where it is made freely available on their website. It may also be noted that several Non – European chemicals and pharma companies are of the opinion that REACH is a non-tariff trade barrier of EU.

CLP [Classification, Labeling and Packaging] regulation introduces into EU the globally harmonized system for classifying and labeling chemicals. This means that we will have better and clearer classification and labeling of hazardous chemicals which is consistent throughout the world. This will ensure that workers and consumers know the effects of chemicals and know how to use them safely. International trade in chemicals will also be easier, as the standards for transportation and supply will be the same world-wide.

When will REACH take affect:

REACH entered into force on 1st June 2007 and will employ phased implementation. The first phase ended December 1st, 2008. The first phase set new MSDS requirements and offered Pre-Registration of all existing or "phase-in" chemicals with the ECHA, European Chemicals Agency.

REACH - Compliance Obligations:

Obligations for REACH compliance are dependent upon the composition and the amount of chemicals concerned. Chemicals classified as Substances of Very High Concern (SvHC) have stringent requirements and higher obligations.

As a manufacturer of substances, preparations or articles in the EU: you are obligated to comply with REACH if your substances alone or used in preparations are in quantities totaling above 1 tonne per annum.

As an importer of substances, preparations or articles in the EU: you are obligated to comply with REACH if your substances alone or used in preparations are in quantities totaling above 1 tonne per annum.

As a downstream distributor of substances, preparations or articles in the EU: You are obligated to communicate associated use, hazards and risk exposure data with your supply chain, using safety data sheets.

As a user of substances and preparations for your own use for industrial purposes: You are not obligated to comply with REACH.

REACH - Pre-Registration:

In line with REACH Article 28, compliance with REACH is mandatory for continued sales of chemicals and products in the European Union. It will be possible to pre-register up to 30,000 existing chemicals. Pre-registration for these existing or "phase-in" substances allows a relaxed time line for completing compliance requirements without a major interruption in European sales. Manufacturers and importers can benefit from the transitional regime and continue with their manufacture or import while they are preparing their registration.

REACH Only Representative (OR):

Article 8 of REACH provides for a non-EU manufacturer to appoint an "Only Representative" (OR) in order to fulfill the registration obligations on their behalf. Non-EU (European Union) manufacturers are not permitted to submit REACH pre-registration dossiers directly to the European Chemicals Agency (ECHA).

REACH & CHEMICAL INDUSTRY

REACH and Leather Industry:

The trend for green consumerism has been extended to leather and leather goods that may come into direct and prolonged contact with the human skin such as footwear, gloves, wrist watches, leather belts, purses, wallets, upholstery etc. Because of the global structure of leather and leather supply industry, and the influence of global retail brands, compliance with REACH has become a voluntary norm for all leather companies worldwide who want to conduct business in international markets. Leather tanning industry is also affected by the new REACH regulation on chemicals, being an important downstream user of a wide variety of chemical preparations. REACH can also bring business benefits by increasing innovation in leather chemicals.

SvHC and RSL:

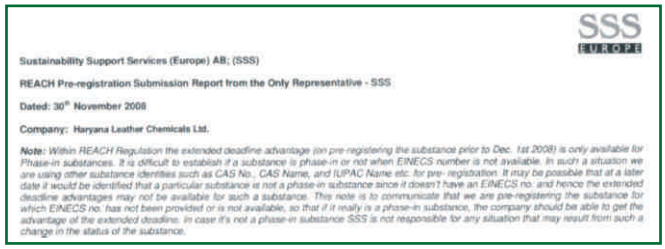
Depending on whether the product belongs to category of substance (pure chemical), preparation (mixture of chemicals), polymer, article (whose shape determines its use as leather bags, garments, furniture etc.); different obligations apply. For REACH compliance of articles, Candidate list SvHC (substance of very high concern) and Restricted substances under ANNEXURE XVII must be complied. SvHC limits are 0.1% per article weight and for RSL different limits exist for different chemicals. If SvHC is present in articles above 0.1% limit, information must be given to buyers (SvHC name, safe use information and amount of SvHC in shipment) under Article 33 norms. If RSL chemicals are present above limits, goods cannot be shipped. Under REACH even packaging materials such as plastic bags and cartons are considered as articles and same norms apply.

REACH & CHEMICAL INDUSTRY

Presence of Restricted Substances						
Restricted Substance	Plastics	Natural Fabric	Synthetic Fabric	Coating Printing	Leather	Metal Parts
Azo Dyes		☐	☐	☐	☐	
Total Cadmium	☐	☐	☐	☐		
Organotin Compounds (TBT/DBT/TPHT/DOT)	☐	☐	☐	☐	☐	
Nickel Release (direct and prolonged contact with skin)						☐
Brominated Flame Retardants (PBB, PRIS, TEPA, PentaBDE, OctaBDE) (required if sample treated with Flame Retardants)	☐	☐	☐			
Chromium (VI)					☐	
Allergenous Disperse dyes			☐			
Formaldehyde		☐	☐	☐	☐	
Pentachlorophenol (PCP)		☐		☐	☐	
Polycyclic aromatic hydrocarbons (PAHs)	☐			☐		
Carcinogenic Dyes		☐	☐	☐	☐	
Nonylphenol (Nps) & Nonylphenol Ethoxylates (NPEOs)	☐	☐	☐	☐	☐	
Dimethy Fumarate (in the form of anti- mold agent)	☐	☐	☐		☐	
Extractable Heavy Metal Content		☐	☐	☐	☐	
Perflurooctane sulfonates (PFOS) (if sample declared with stain and water repllant finishing)	☐	☐	☐		☐	
Chlorinated Organic carriers (COC)			☐			
Volatile Organic Compounds (VOC)	☐	☐	☐	☐	☐	

HLC - REACH READY

HLC, as an exporter of chemical formulations for leather industry has completed pre-registration of the crucial raw materials through it's Only Representative (OR) - M/S Sustainability Support Services AB – Europe, Switzerland.



SSS EUROPE

Sustainability Support Services (Europe) AB; (SSS)

REACH Pre-registration Submission Report from the Only Representative - SSS

Dated: 30th November 2008

Company: Haryana Leather Chemicals Ltd.

Note: *Within REACH Regulation the extended deadline advantage (on pre-registering the substance prior to Dec. 1st 2008) is only available for Phase-in substances. It is difficult to establish if a substance is phase-in or not when EINECS number is not available. In such a situation we are using other substance identities such as CAS No., CAS Name, and (UPAC Name etc. for pre- registration. It may be possible that at a later date it would be identified that a particular substance is not a phase-in substance since it doesn't have an EINECS no. and hence the extended deadline advantages may not be available for such a substance. This note is to communicate that we are pre-registering the substance for which EINECS no. has not been provided or is not available, so that if it really is a phase-in substance, the company should be able to get the advantage of the extended deadline. In case it's not a phase-in substance SSS is not responsible for any situation that may result from such a change in the status of the substance.*

HLC's GREEN FIREWALL

Sources, Management and Internal Screening Supporting RSL and REACH at HLC

Plan

- Organise RSL and REACH-SvHC internal compliance team.
- Educate and train internal team.
- Identify an "OR" for REACH Pre Registration.
- Evaluate supplier's compliances.
- Document customers' need.
- Understand chemical information from web sources like STN.

Act

- Substitute SvHC, if present, with alternate substances.
- Enforce suppliers for REACH compliance and certification.
- Re-drafting of company's MSDS as per REACH guidelines.
- Provide certification to customers.

Secure

- Perform internal screening of inputs employing latest chromatography and spectrophotometry techniques using Agilent and Perkin Elmer equipments.
- Conduct regular checks on process variables and recipes.
- Random sampling of inputs and comparison with RSL certification of suppliers.

Maintain

- Calibrate internal testing with outside labs like SGS and INTERTEK.
- Do not ship products if in doubt unless certified by outside labs.
- Communicate with customers for understanding changes in their RSL needs.
- Regular renewal of certification by suppliers.
- Random testing of finished products by expert labs like TUV, CLRI and FDDI.

Upgrade

- Web Track new guidelines and latest REACH amendments from ECHA.
- Track new developments in chromatography and detection techniques.
- Update declarations made via certificates to customers.
- Evaluate and Implement regular updates from company's REACH Only Representative - SSS, Sweden.

REACH LIST OF 144 SVHC

No	Substance Description	EU No.	CAS No.
1	Hexahydromethylphthalic anhydride [1], Hexahydro-4-methylphthalic anhydride [2], Hexahydro-1-methylphthalic anhydride [3], Hexahydro-3-methylphthalic anhydride [4] [The individual isomers [2], [3] and [4] (including their cis- and trans- stereo isomeric forms) and all possible combinations of the isomers [1] are covered by this entry]	247-094-1, 243-072-0, 256-356-4, 260-566-1	25550-51-0, 19438-60-9, 48122-14-1, 57110-29-9
2	6-methoxy-m-toluidine (p-cresidine)	204-419-1	12071-78
3	Cyclohexane-1,2-dicarboxylic anhydride [1], cis-cyclohexane-1,2-dicarboxylic anhydride [2], trans-cyclohexane-1,2-dicarboxylic anhydride [3] [The individual cis- [2] and trans- [3] isomer substances and all possible combinations of the cis- and trans-isomers [1] are covered by this entry]	201-604-9, 236-086-3, 238-009-9	85-42-7, 13149-00-3, 14166-21
4	Pyrochlore, antimony lead yellow	232-382-1	8012-00-8
5	Henicosafluoroundecanoic acid	218-165-4	2058-94-8
6	4-Aminoazobenzene	200-453-6	60-90-3
7	Silicic acid, lead salt	234-363-3	11120-22-2
8	Lead titanium zirconium oxide	235-727-4	12626-81-2
9	Lead monoxide (lead oxide)	215-267-0	1317-36-8
10	o-Toluidine	202-429-0	95-53-4
11	3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	421-150-7	143860-04-2
12	Dibutyltin dichloride (DBTC)	211-670-0	683-18-1
13	Lead bis(tetrafluoroborate)	237-486-0	13814-96-5
14	Lead dinitrate	233-245-9	10099-74-8
15	Silicic acid (H2Si2O5), barium salt (1:1), lead-doped	272-271-5	68784-75-8
16	Trilead bis(carbonate)dihydroxide	215-290-6	1319-46-6
17	4,4'-methylenedi-o-toluidine	212-658-8	838-88-0
18	Diethyl sulphate	200-589-6	64-67-5
19	Dimethyl sulphate	201-058-1	77-78-1
20	N,N-dimethylformamide	200-679-5	85-42-7, 13149-00-3, 14166-21
21	4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated [covering well-defined substances and UVCB substances, polymers and homologues]		
22	4-Nonylphenol, branched and linear[substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, covering also UVCB- and well-defined substances which include any of the individual isomers or a combination thereof]		
23	Furan	203-727-3	110-00-9
24	Lead oxide sulfate	234-853-7	12036-76-9
25	Lead titanium trioxide	235-038-9	12060-00-3
26	Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE)	214-604-9	1163-19-5
27	Dinoseb (6-sec-butyl-2,4-dinitrophenol)	201-861-7	88-85-7
28	1,2-Diethoxyethane	211-076-1	629-14-1
29	N-methylacetamide	201-182-6	79-16-3
30	Tetralead trioxide sulphate	235-380-9	12202-17-4
31	Acetic acid, lead salt, basic	257-175-3	51404-69-4
32	[Phthalato(2-)]dioxotrilead	273-688-5	69011-06-9
33	Tetraethyllead	201-075-4	78-00-2
34	N-pentyl-isopentylphthalate		776297-69-9
35	Pentalead tetraoxide sulphate	235-067-7	12065-90-6
36	Heptacosafluorotetradecanoic acid	206-803-4	376-06-7
37	Tricosafluorododecanoic acid	206-203--2	307-55-1
38	1-bromopropane (n-propyl bromide)	203-445-0	106-94-5
39	Dioxobis(stearato)trilead	235-702-8	12578-12-0
40	Pentacosafluorotridecanoic acid	276-745-2	72629-94-8
41	Methoxyacetic acid	210-894-6	625-45-6
42	Methyloxirane (Propylene oxide)	200-879-2	75-56-9
43	Trilead dioxide phosphonate	235-252-2	12141-20-7
44	o-aminoazotoluene	202-591-2	97-56-3
45	4-methyl-m-phenylenediamine (toluene-2,4-diamine)	202-453-1	95-80-7

Contd.

Up till June 2013

No	Substance Description	EU No.	CAS No.
46	Diisopentylphthalate	210-088-4	605-50-5
47	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	284-032-2	84777-06-0
48	Henicosafluoroundecanoic acid	218-165-4	2058-94-8
49	Biphenyl-4-ylamine	202-177-1	92-67-1
50	Fatty acids, C16-18, lead salts	292-966-7	91031-62-8
51	Orange lead (lead tetroxide)	202-977-0	101-80-4
52	Diazene-1,2-dicarboxamide (C,C'-azodi(formamide))	204-650-8	123-77-3
53	Sulfurous acid, lead salt, dibasic	263-467-1	62229-08-7
54	Lead cyanamidate	244-073-9	20837-86-9
55	α,α-Bis[4-(dimethylamino)phenyl]-4 (phenylamino) naphthalene-1-methanol (C.I. Solvent Blue 4) [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	229-851-8	6786-83-0
56	1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione (β-TGIC)	423-400-0	59653-74-6
57	N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	202-959-2	101-61-1
58	Diboron trioxide	215-125-8	1303-86-2
59	1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	203-977-3	112-49-2
60	Formamide	200-842-0	75-12-7
61	4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	209-218-2	561-41-1
62	Lead(II) bis(methanesulfonate)	401-750-5	17570-76-2
63	[4-[4,4'-bis(dimethylamino) benzhydrylidene]cyclohexa-2,5-dien-1 -ylidene]dimethylammonium chloride (C.I. Basic Violet 3) [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	208-953-6	548-62-9
64	1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	203-794-9	110-71-4
65	[4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene] cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride (C.I. Basic Blue 26) [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	219-943-6	2580-56-5
66	1,3,5-Tris(oxiran-2-ylmethyl)-1,3,5-triazinane-2,4,6-trione (TGIC)	219-514-3	2451-62-9
67	4,4'-bis(dimethylamino)benzophenone (Michler's ketone)	202-027-5	90-94-8
68	Phenolphthalein	201-004-7	77-09-8
69	N,N-dimethylacetamide	204-826-4	127-19-5
70	4-(1,1,3,3-tetramethylbutyl)phenol	205-426-2	140-66-9
71	Lead diazide, Lead azide	236-542-1	13424-46-9
72	Lead dipicrate	229-335-2	6477-64-1
73	1,2-dichloroethane	203-458-1	107-06-2
74	Calcium arsenate	231-904-5	7778-44-1
75	Dichromium tris(chromate)	246-356-2	24613-89-6
76	2-Methoxyaniline; o-Anisidine	201-963-1	90-04-0
77	Pentazinc chromate octahydroxide	256-418-0	49663-84-5
78	Arsenic acid	231-901-9	7778-39-4
79	Potassium hydroxyoctaoxodizincatedichromate	234-329-8	11103-86-9
80	Formaldehyde, oligomeric reaction products with aniline	500-036-1	25214-70-4
81	Lead styphnate	239-290-0	15245-44-0
82	Aluminosilicate Refractory Ceramic Fibres		
83	Bis(2-methoxyethyl) phthalate	204-212-6	117-82-8
84	Zirconia Aluminosilicate Refractory Ceramic Fibres		
85	Trilead diarsenate	222-979-5	3687-31-8
86	Bis(2-methoxyethyl) ether	203-924-4	111-96-6
87	2,2'-dichloro-4,4'-methylenedianiline	202-918-9	101-14-4
88	Cobalt dichloride	231-589-4	7646-79-9
89	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich	276-158-1	71888-89-6
90	Strontium chromate	232-142-6	02-06-7789
91	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters	271-084-6	68515-42-4
92	1-Methyl-2-pyrrolidone	212-828-1	872-50-4

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REACH LIST

No	Substance Description	EU No.	CAS No.
93	1,2,3-Trichloropropane	202-486-1	96-18-4
94	2-Ethoxyethyl acetate	203-839-2	111-15-9
95	Hydrazine	206-114-9	302-01-2, 7803-57-8
96	Cobalt(II) diacetate	200-755-8	71-48-7
97	2-Ethoxyethanol	203-804-1	110-80-5
98	Cobalt(II) sulphate	233-334-2	10124-43-3
99	Acids generated from chromium trioxide and their oligomers. Names of the acids and their oligomers: Chromic acid, Dichromic acid, Oligomers of chromic acid and dichromic acid.	231-801-5, 236-881-5	7738-94-5, 13530-68-2
100	2-Methoxyethanol	203-713-7	109-86-4
101	Chromium trioxide	215-607-8	1333-82-0
102	Cobalt(II) carbonate	208-169-4	513-79-1
103	Cobalt(II) dinitrate	233-402-1	10141-05-6
104	Trichloroethylene	201-167-4	79-01-6
105	Potassium dichromate	231-906-6	7778-50-9
106	Tetraboron disodium heptaoxide, hydrate	235-541-3	12267-73-1
107	Boric acid	233-139-2, 234-343-4	10043-35-3, 11113-50-1
108	Ammonium dichromate	232-143-1	05-09-7789
109	Sodium chromate	231-889-5	03-11-7775
110	Disodium tetraborate, anhydrous	215-540-4	1303-96-4, 1330-43-4, 12179-04-3
111	Potassium chromate	232-140-5	7789-00-6
112	Acrylamide	201-173-7	79-06-1
113	Lead sulfochromate yellow (C.I. Pigment Yellow 34)	215-693-7	1344-37-2
114	Lead chromate molybdate sulphate red (C.I. Pigment Red 104)	235-759-9	12656-85-8
115	2,4-Dinitrotoluene	204-450-0	121-14-2
116	Anthracene oil	292-602-7	90640-80-5
117	Anthracene oil, anthracene paste, anthracene fraction	295-275-9	91995-15-2
118	Anthracene oil, anthracene-low	292-604-8	90640-82-7
119	Diisobutyl phthalate	201-553-2	84-69-5
120	Tris(2-chloroethyl)phosphate	204-118-5	115-96-8
121	Lead chromate	231-846-0	7758-97-6
122	Anthracene oil, anthracene paste	292-603-2	90640-81-6
123	Pitch, coal tar, high temp.	266-028-2	65996-93-2
124	Anthracene oil, anthracene paste,distn. lights	295-278-5	91995-17-4
125	Lead hydrogen arsenate	232-064-2	7784-40-9
126	Benzyl butyl phthalate (BBP)	201-622-7	85-68-7
127	Bis (2-ethylhexyl)phthalate (DEHP)	204-211-0	117-81-7
128	Bis(tributyltin)oxide (TBTO)	200-268-0	56-35-9
129		201-329-4	81-15-2
130	Diarsenic trioxide	215-481-4	1327-53-3
131	Triethyl arsenate	427-700-2	15606-95-8
132	Diarsenic pentaoxide	215-116-9	1303-28-2
133	Sodium dichromate	234-190-3	7789-12-0, 10588-01-9
134	Dibutyl phthalate (DBP)	201-557-4	84-74-2
135	4,4'- Diaminodiphenylmethane (MDA)	202-974-4	101-77-9
136	Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	287-476-5	85535-84-8
137	Anthracene	204-371-1	120-12-7
138	Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified: Alpha-hexabromocyclododecane Beta-hexabromocyclododecane Gamma-hexabromocyclododecane	247-148-4 and 221-695-9	25637-99-4, 3194-55-6 (134237-50-6) (134237-51-7) (134237-52-8)
139	Cadmium	231-152-8	7440-43-9
140	Ammonium pentadecafluorooctanoate (APFO)	223-320-4	3825-26-1
141	Pentadecafluorooctanoic acid (PFOA)	206-397-9	335-67-1
142	Dipentyl phthalate (DPP)	205-017-9	131-18-0
143	4-Nonylphenol, branched and linear, ethoxylated [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, ethoxylated covering UVCB- and well-defined substances, polymers and homologues, which include any of the individual isomers and/or combinations.		
144	Cadmium oxide	215-146-2	1306-19-0

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CERTIFICATION

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To: All our Valuable Customers & Dealers

Dated: 1st August, 2013

DECLARATION ON BANNED SUBSTANCES

Haryana Leather Chemicals Ltd. hereby declares that based on available data and our own assessment, all the performance chemicals for leather produced by 'HARYANA' & listed in our technical literature, do not contain any of the banned 'Substance of Very High Concern' (SvHC) listed in the candidate list of restricted substances published in accordance with the REACH Regulations up to June 2013.

We also declare that all our products are free from "Free Formaldehyde", except for few products in our 'SYNTAN' range. Our marketing team will be happy to provide you data on free formaldehyde in our syntans on request.

We confirm that HARYANA products can be safely used for the production of REACH compliant leathers, subject to their appropriate application in accordance with the recommendations / guidance of our experts.

for Haryana Leather Chemicals Ltd.

HARYANA LEATHER CHEMICALS LTD.

Neeraj Bishnoi
General Manager - Marketing

Disclaimer:
The above information is based on our present knowledge, internal assessment & available data and has been submitted in good faith as general information. It does not relieve the end user from their responsibility of testing / verification of our product's suitability for their intended purpose, as many factors / conditions during their actual application, that may affect the end results, are beyond our control.

Regular Updates and Calibrations Using Internationally Accredited Test Labs

Green-Trek- a symbol of our
commitment to sustainable technologies