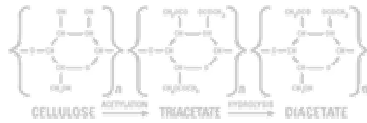


**Enriching the
Knowledge about Cellulose Acetate
by Mr. Michel AUDOIN**
*Presentation to the CORESTA Joint Meeting
Freiburg, Germany from 7 – 11 September 2003*

I. ABOUT CELLULOSE ACETATE

What is cellulose acetate, what is it used for and what are the features of this product that cannot be matched by any other material?



Throughout this paper, Mr. Michel AUDOIN from RHODIA Acetow and past Chairman of the Global Acetate Manufacturers Association (GAMA) will discuss the product, the sector and finally, the organisation that represents acetate manufacturers.

Historical Overview

Acetate can be proud to be the first man-made fibre – an interesting aspect when you look at the developments that have occurred since then in the textile sector.



In 1904 in Basle (CH) the Dreyfus brothers developed the first commercial process to manufacture cellulose acetate. For more than five years, the Dreyfus studied and experimented in a logical, systematic manner in Switzerland and France and by 1910, they had perfected acetate lacquers and plastic film and opened a factory in Basle capable of producing about three tons a day. This was largely sold to the celluloid industry in France and Germany, and to Pathé Frères in Paris for non-flammable motion picture film base.

A small but constantly growing amount of acetate lacquer, called "dope", was sold to the expanding aircraft industry to coat the fabric covering wings and fuselage. After some twenty-odd thousand separate experiments, by 1913, the brothers produced excellent laboratory samples of acetate continuous filament yarn.

The outbreak of the **First World War** postponed completion of development leading to successful commercial production until 1921. The war, of course, necessitated rapid expansion of the Basle factory, which terminated its trade with Germany and exclusively supplied the Allied Governments with acetate "dope" for military aircraft.

In November 1914, the British Government invited Dr. Camille Dreyfus to come to England to manufacture acetate "dope". In 1917, the War Department of the United States Government invited Dr. Dreyfus to establish a similar factory in the US after entry into the war. After about six weeks, a contract was negotiated for sale of acetate "dope" to the War Department and a plant site was sought. Dr Dreyfus and his associates started construction of the American company at Cumberland, Maryland in 1918, but the war was over before the plant could be completed.

In England, in 1912, the British company produced the first commercial cellulose acetate yarn. The yarn was sold primarily for crocheting, trimming, and effect threads

and for popular-priced linings. Today, acetate offers a range of products ranging from yarn, flake and tow to specialty materials such as plastics.

The key characteristics

Cellulose Acetate is a versatile material since it can be used in a wide range of applications ranging from impact resistant plastics to soft fabrics. This versatility is complemented by the fact that it's a user-friendly material that can be used in many different processes (e.g. weaving, wet-lay forming etc.). The conjugation of versatility, wide range of applications and user-friendly characteristics make acetate a unique product. Some relevant properties of cellulose acetate include:

- a) Easily bonded with plasticizers, heat and pressure;
- b) Soluble in most conventional and alternative solvents;
- c) Selectively absorbs and removes low levels of organic chemicals
- d) Hypoallergenic properties guarantee safety in contact with skin and food;
- e) Environment friendly made from a renewable resource it can be composted or incinerated.

The long history and unique properties of acetate were certainly amid the several issues that led the manufacturers of the product to create a global association that through its different projects would contribute *to advance the knowledge about cellulose acetate*.

II. WHO WE ARE

The Global Acetate Manufacturers' Association was founded in 2000. Its members are producers of cellulose acetate tow, filament and flake. The companies that are represented within GAMA cover the whole world namely Europe, US, Korea and Japan. The following companies are the members of GAMA:

Acetati (Italy), Acordis (UK), Celanese Acetate (USA), Daicel Chemical Industries (Japan), Inacsa (Spain), Mitsubishi Rayon (Japan), Novaceta (Italy), Rhodia Acetow (France), S.K. Chemicals (South Korea) and Voridian (a division of Eastman Chemical Company) (USA).

The challenges of globalization and a new business environment marked by the opening up of new markets and an increased emphasis on new regulatory requirements (health and environmental) are common to all companies in the sector and could jointly be addressed more effectively. This concept made cellulose acetate manufacturers consider the creation of an organization that would be able to:

- Promote the use of cellulose acetate and its derivatives;
- Advance the competitive quality of cellulose acetate;
- Cost-effectively address key policy and regulatory issues on a worldwide level.

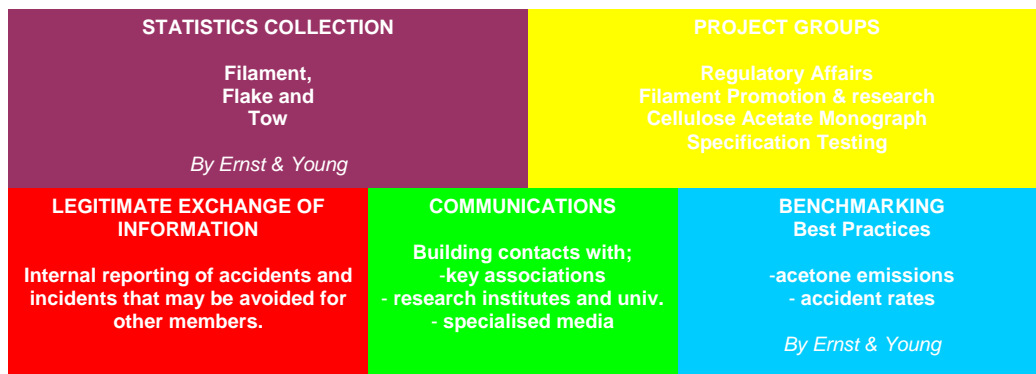
It was then that GAMA was created with the mission of enhancing the long-term viability of cellulose acetate and its derivative products on a worldwide basis.

Structure & Functioning

The Secretariat of the association is composed of 3 staff (+ advisors), located in Brussels, Belgium within the CEFIC/CIRFS offices. These professionals have the role

of coordinating the activities of the association and ensuring the adequate management of the different projects of GAMA. In doing so they work in close contact with Committees and Project Groups that GAMA creates according to the issues or subjects at hand. The committees are composed of technical staff (experts) from each member company with an interest in that specific topic. Currently GAMA holds the following committee and project groups:

- Benchmarking & Centre of Excellence (includes Statistics)
- Communications Group
- Regulatory Affairs Committee
- Filament Promotion & Research Group
- Cellulose Acetate Monograph Working Group
- Specification Testing Working Group



In doing so they work in close liaison with the Board of GAMA, composed by the senior executive of each member company. The Board is the sovereign body of the association. Finally, global services firm Ernst & Young ensures permanent legal compliance with the “GAMA code of conduct” and international regulations.

What this type of structure and organization achieves is a legitimate exchange of information developing joint projects, better identification of best practices and promotion of cellulose acetate in the different relevant fora.

Below are only some of the examples that these special project groups within GAMA have achieved and are currently working on.

Filament Promotion & Research



The key objective is the Promotion of the comfort properties and use of acetate yarn. The group also contributes to the development of research initiatives; for example on worldwide changes on textile consumption patterns. More recently, this GAMA committee has also engaged in contact with a number of renowned research institutes and academic organizations to develop a joint project (industry and academia) on the improvement areas of the properties of acetate filament, and its comparison with other fibres.

The Filter Tow Industry Project



The target of this working group is to study the technical advantages and disadvantages of cellulose acetate tow as a competitive product.

The results of a study comparing performances of cellulose acetate tow and polypropylene tow were presented at the CORESTA - "Joint Meeting of the Smoke and Technology Groups" in Xian, China, in September, 2001 and published in Tobacco Asia (Edition 1-2003).

Regulatory Affairs

The members of this group are the manufacturers of acetate tow and also the flake and filament producers. It constitutes an important forum for discussion of health, safety and environmental regulatory issues that are of interest to all member companies.

Like with every activity, the monitoring of regulatory developments is an important pre-condition for defining reactive actions and proactive statements to governments and policy makers. Another important objective inherent in the activities of this group is to promote the safe and responsible handling of the products – and in that respect, the committee has undertaken a number of projects some of which are still ongoing.

Some of the specific activities that are developed by the group in the regulatory field include:

Ingredients of Acetate Tow (European Tobacco Products Directive)

- Harmonized format for disclosure
- Co-shared preparation of “toxicological data and regulatory information”
- Monitoring the regulatory status of all ingredients; inc. *Participation in the process for the positive listing of cigarette ingredients.*

Other Issues currently in discussion by the group

- o European Chemical Policy (REACH)
- o Environmental Legislation (BAT)
- o Evaluation of Dust Exposure
- o Volatile Organic Compounds Regulation

Cellulose Acetate Monograph



The Cellulose acetate Monograph group is composed by company scientific representatives and by a network of renowned academia and researchers from Europe, USA and Japan with vast experience in cellulose acetate. This merger of the academic, scientific and industry knowledge is intended to write a monograph. The content will be a historical overview of the use of acetate in different applications, its properties and characteristics.

The Monograph will be published by an international publishing company in 2004 the date when GAMA will commemorate the 100th Anniversary of Cellulose Acetate.

Specification Testing

The objective of the group is to develop reference analytical methods suitable for use in specifications for Cellulose Acetate Tow.

CHRONOLOGY

- 2000 - Creation of the association;
- 2001 - Report on the comparison between polypropylene tow and cellulose acetate tow presented to the CORESTA meeting in Xian, China;
- 2002 - Launching of acetateworld.com an information source promoting the use of acetate filament in textiles;
- 2003 - Creation of a network of experts and academia to investigate the properties of acetate in diverse applications.
- 2004 - Expected publication of the first book on the history, characteristics and properties of cellulose acetate.

COOPERATING WITH GAMA

GAMA today is an active partner of different key stakeholders within the sector, is the only global association representing acetate manufacturing, constitutes a unique source of information on cellulose acetate and related issues and finally, GAMA has some capacity for (and a history of) undertaking important research initiatives related to the properties and characteristics of cellulose acetate tow.

Consult our website at www.acetateweb.com for more information on cooperation opportunities that GAMA may offer you.

•

For more information contact

GAMA – Global Acetate Manufacturers Association

Ave. E. Van Nieuwenhuysse, 4

B - 1160 - BRUSSELS

Tel. +32-2-676.74.06 - Fax. +32-2-676.54.54

E-mail: gama@gama-hq.org