

# Safe use of hydrocolloids

FOOD MANUFACTURERS LIVE WITH THE GROWING PRESSURE OF PRODUCING SAFER FOODSTUFFS WHILE KEEPING THEIR PRODUCTION COSTS DOWN

**++ author** Anita Bénech, ALFRED L. WOLFF (Germany), abenech@alwolff.de, www.alwolff.com

**+** Suppliers of natural food ingredients and additives at the start of the supply chain face a similar challenge, i.e. the necessity to source raw materials with a maximum safety guarantee at the most favorable price level. A modern phenomenon about food is the fact that, no matter if one is talking about cheap fast food or premium food specialties, all ingredients and additives have gone through various quality checks, chemical and bacteriological controls, production audits or audits associated with kosher, halal or organic certifications – just to name a few. Consumers generally ignore these facts and the implications for the ingredient suppliers and the food manufacturers, in terms of heavy financial investments in their respective quality control systems.

## Quality Assurance from the start

Natural food hydrocolloids such as Gum Arabic (also known as Acacia Gum), Agar-Agar, Carrageenanes, Guar Gum, Xanthan and Locust Bean Gum belong to the basic recipes of a wide range of foodstuffs. Their thickening, jellifying, stabilizing, binding, encapsulating, surface-protecting, texturizing or emulsifying properties are a guarantee of quality in finished products as varied as bakery, dairy, confectionery products, meat products, frozen food, convenience products, beverages, functional and health foodstuffs, food supplements and beverages as well as fat- or sugar-reduced foodstuffs. Alfred L. Wolff (Germany), which has a lot of experience in the field of trading and processing natural food hydrocolloids, is organized in sourcing these raw materials in their countries of origin and selling different grades and qualities according to their final applications. All steps in the supply chain are accompanied by an overall Quality Management to ensure the highest levels of safety:

- +** ISO 9001:2000 – The current ISO certificate was approved on 1st July 2006 and is valid until 30th June 2009.
- +** HACCP (Hazard Analysis of Critical Control Points) – Implemented in 1998, this self-run hygiene control system complies with the HACCP Guidelines and the European Regulations: EC 852/2004, 853/2004 and 854/2004.
- +** AUDITS – A regular schedule of internal and external audits by our quality manager ensures strict compliance with all quality requirements, their respective updates and the implementation of new control tools and measures within the worldwide company network.
- +** KOSHER and HALAL – Certification for practically all our natural products, i.e. strict conformance with the Jewish and Moslem food requirements.
- +** ORGANIC – Certification for our natural sweeteners,

honey and agave juice according to the European Regulation EEC 2092/91 on Organic Farming and the USDA/NOP-Final Rule on organically produced goods. Certification by BCS-Öko-Garantie GmbH, Germany, EU-Code no. DE-001-Öko-Kontrollstelle.

- +** TRACEABILITY – Back to the country of origin through systematic sampling of the incoming goods and our production. These samples are kept as reference qualities over a certain period of time, enabling us to trace them back to their origin and compare the quality of the respective lots if required.
- +** ENVIRONMENTAL CARE and INDUSTRIAL SAFETY – Applies to the handling, storage, processing and transport of the natural raw materials including caring for water and power supply, recycling packing materials and composting production residues, safety controls in the production units, preventive medical checks on the staff and an overall care for environmental concerns around the natural raw materials that we currently trade and process.

## Product Analysis

Next to the aforementioned global Quality Assurance System is the analysis of the product relevant quality criteria or the quality checks on the parameters defined in the customer's product specifications. In the case of Alfred L. Wolff, as an established supplier of natural food hydrocolloids, this means an extended range of analytical work on a daily basis in the company's in-house laboratory, summarized in a Certificate of Analysis sent along with the goods to the customers, i.e. the manufacturers of foodstuffs. To illustrate this point, we will refer to Gum Arabic and Agar-Agar, i.e. one gum hydrocolloid and one seaweed hydrocolloid, both naturally versatile raw materials with a wide spectrum of applications across the food industry.

### 1. Gum Arabic (or Acacia Gum)

The company Alfred L. Wolff has been involved in the trade and processing of this natural tree exudate for more than a century. There are some differences between the raw gum qualities depending on the acacia species, the climate and the nature of the soil in the country of origin. In order to classify the Gum Arabic grades, define the various types and process them into Quick Gum special qualities for specific food applications, we carry out the following checks:

#### *Organoleptic evaluation of the raw gum*

- +** shape, size, structure of the pieces, granules or powder
- +** color
- +** odor and taste

**Chemical analysis**

- + optical rotation
- + ash content
- + acid insoluble matters, respectively insoluble matters
- + moisture content
- + viscosity
- + pH
- + tannins, starch, dextrine
- + heavy metals (arsenic, lead, mercury, cadmium)
- + emulsifying test

**Microbiological determination of total plate count**

The same quality evaluation is applied to our production of Quick Gum Arabic in various qualities – from the physical appearance of the powder or the aqueous solution to their chemical characteristics and microbiological data in order to define which Quick Gum qualities fit ideally in confectionery products (colloidal coating or texture enhancer), in beverage emulsions (stabilizer of emulsions), in powdered flavors (encapsulation of flavor particles), in snacks (natural adhesive) as well as in pharmaceutical and cosmetic products. Providing the nutrition facts is necessary for the industrial applications in functional foodstuffs, beverages, dietary food, diet supplements, health products and special products for children, young infants, and elderly people as well as for people with diabetes or cholesterol concerns.

**2. Agar-Agar**

This is another traditional product of Alfred L. Wolff. Agar-Agar is the extract from the red seaweeds occurring naturally on the coastlines of Morocco and Spain as well as on the Japanese, Chinese and Taiwanese coasts. Known for its outstanding jellifying properties, Agar-Agar is the perfect plant alternative for animal gelatin and, as such, much favored by vegetarians and vegans as well as food manufacturers of kosher and halal foodstuffs. Agar-Agar is insoluble in cold water. It is fully dissolved at temperatures around 95 to 100°C. The new quality QSA® Quick Soluble Agar can be dissolved at 65°C. Once they are cooled down to 35-40°C, Agar-Agar and QSA® solidify to give firm gels that are thermo-reversible. QSA® is a registered trademark by Setexam, Morocco, whom Alfred L. Wolff represents in various countries of the world.

The product analysis includes the following elements:

**Agar-Agar powder qualities are defined by**

- + mesh size (granulometry)
- + gel strength, expressed in g/cm<sup>2</sup> according to the Kobe test

**Organoleptic evaluation of Agar-Agar**

- + powder structure and particle size
- + color
- + odor and taste

**Chemical analysis**

- + moisture
- + ash content

On the basis of this analytical definition of the seaweed hydrocolloid Agar-Agar, we can define which quality is suitable for confectioneries, dairy products, bakery and pastry applications, dressings, cream cheese, meat products and/or pharmaceutical products, giving a maximum of qualitative guarantees to the manufacturer, and hence to the end consumer.

**The choice of quality-checked ingredients for safe(r) foodstuffs**

At all stages of the supply chain, choices are possible, i.e. proven quality vs. poor quality. However, there is no choice of that kind when it comes to conscious quality policy. As an established supplier of natural raw materials to the food industry, including Gum Arabic, Quick Gum and Agar-Agar, we have chosen the demanding discipline of “proven quality”. Such an overall Quality Assurance System means considerable financial investment in equipment and trained staff, as well as the regular renewal of certifications through external audits, the updating of control measures, the renewal of appliances and the further education of our staff under the responsibility of our Quality Management Team. With this, we contribute, at the end of the supply chain to the consumption of better and safer foodstuffs. +++

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