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## Market Insider

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# ESSENTIAL OILS AND OLEORESINS MARKET INSIDER



Pilot still with multi-tube condenser

October 2015 Report

## Market Insider

Building awareness and assisting developing countries with access to trade and market information has been at the heart of the International Trade Centre (ITC) work. The Market Insider is a newly branded global public goods service built on a "blog" interface to provide just-in-time content on market prices and industry developments focusing on forward-looking intelligence in anticipation of market opportunities, market dynamics, quality issues, trade events and sector-specific intelligence on commodities of interest to developing countries.

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### Asian markets showing strong growth in beauty products

Beauty products are an important user of essential oils, and growth in this sector remains strong in Asia. Recent reports give 7% annual average growth rate for Vietnam, 10% for Indonesia, 3% for Malaysia, and % for Uzbekistan. The cosmetics market in Russia is expected to reach over US\$15 billion in 2015. These markets are important drivers for essential oil demand. Populations are large – 90 million in Vietnam, over 250 million in Indonesia – and incomes are increasing.

### First results out from IFEAT/RIFM project on safety of essential oils

IFEAT is working with the Research Institute for Fragrance Materials (RIFM) on evaluation the safety of essential oils. The programme focuses on testing the whole (complete) oil, in contrast to most previous testing regimes which looked at individual constituents and isolates as sources of toxicity. The programme intends to assess the potential carcinogenic, mutagenic and reproductive toxicity of around 200 naturals, chosen on the basis of their relative production volume, REACH compliance and other industry-relevant criteria. IFEAT has provided the funding for the testing of the first 15 essential oils within the project.

The assessment for each oil involves a battery of tests designed to determine whether the material can cause mutations or cellular toxicity in a living system. If an essential oil produces a positive result in any test, it will be evaluated in greater detail. The initial battery of tests are:

- BlueScreen™ HC, conducted by Getronix Laboratories, is an assay composed of mammalian cells that measures the genotoxicity and cytotoxicity of a mixture or compound;
- Bacterial Reverse Mutation Assay (OECD 471) – the Ames Test – that determines the incidence of mutations in a bacterial cell culture that has been exposed to an essential oil or other material; and
- *In vitro* Micronucleus Assay (OECD 487) that evaluates the cytogenecity of the essential oil in *in vitro* human peripheral blood tissue. The test provides information on whether a material interferes with cell reproduction during the process of cell division.

The first 5 essential oils to be tested were:

- *Eucalyptus citriodora* oil
- Fir needle oil (Siberian)
- Geranium oil (African)
- Petitgrain oil (Paraguay)
- Rose oil (Bulgarian)

All the oils tested negative for evidence of genotoxicity in each of the 3 assays.

Source: IFEAT

### Grapefruit oil in short supply

The trade reports that grapefruit oil remains in short supply, and prices for cold pressed oils have more than doubled in less than a year. As more buyers start to run into supply problems prices could rise strongly

Source: Treatts

### Strong price rises for Chamomile oils

Prices for both Roman Chamomile (*Anthemis nobilis*) and German Chamomile (*Matricaria chamomilla*) have risen strongly in recent months as strong increases in demand have clashed with declining availability. Poor growing season conditions in Europe for Roman Chamomile have depressed yields; while a change in cropping patterns in Nepal have results in food crops replacing German Chamomile plantings.

## Results of Anuga 2015 – press release

In addition to a record number of exhibitors, growth in attendance Around 160,000 trade visitors from 192 countries Quality of the visitors convinces the exhibitors across the board Anuga in Cologne unparalleled as a business and information platform Partner country Greece demonstrates the diversity of its food industry. After a record number of exhibitors, Anuga 2015 also increased its attendance figures. Around 160,000 trade visitors from 192 countries attended Anuga in Cologne from 10 to 14 October 2015. "Anuga is unparalleled as a business and information platform for the global food industry," said Gerald Böse, President and Chief Executive Officer of Koelnmesse. "Once again this year, it has clearly underlined its position as the leading international trade fair." Anuga 2015 presented over 7,000 exhibitors from 108 countries. The share of foreign exhibitors was 89 percent and the share of foreign visitors was 68 percent. The exhibitors were particularly impressed by the quality of the visitors. Decision-making buyers from the trade and from the food service sector ensured that the trade fair took a dynamic course.

The 33rd Anuga was opened on Saturday, 10 October 2015 by Christian Schmidt, the German Minister for Food and Agriculture, and Evangelos Apostolou, the Greek Minister for Agricultural Development and Food. Greece was the partner country of Anuga 2015 and the country was successfully represented by over 200 Greek exhibitors, who presented the entire variety and quality of Greece's food industry. The international significance of Anuga for the food sector was also an occasion for numerous high-ranking political delegations from Germany and abroad to visit Anuga. "Anuga 2015 exceeded our expectations. The high interest shown by exhibitors and visitors from Germany and abroad is impressive and underlines the significance of Anuga as the world's most important trade fair for food and drinks," observed Friedhelm Dornseifer, President of the Association of the German Retail Grocery Trade (BVLH), highly satisfied. "Once again this year the trade visitors were able to test thousands of high-quality and innovative products." The huge diversity clearly reflects the food trends that have been accompanying us for some time already. Good taste and fresh goods have always been important for the consumers. Furthermore, the theme convenience gains ever-increasing relevance. Today, our food has to be easy to consume and easy to cook. Those companies that succeed in linking these characteristics with healthy and sustainable aspects have good prospects of achieving high sales." "Anuga is the global marketplace and trendsetter for food and drinks every two years. Once again in 2015, we were able to impressively demonstrate which measures German companies take every day for the quality, safety and diversity of the "Made in Germany" seal and how food producers fulfil the wishes of consumers worldwide with a customised range of products, said Dr. Wolfgang Ingold, Chairman of the Federation of German Food and Drinks Industries (BVE). "Hence, we have reached our goals: Anuga offers fair participants the opportunity to experience the entire world of food and drinks in all its extraordinary diversity, like no other trade fair."

Ingrid Hartges, Chief Executive of the DEHOGA Federal Association, drew a positive balance for the trade fair: "Anuga 2015 was an impressive exhibition. Trends, products and service solutions from over 100 nations were our guests here in Cologne. Eating and drinking - that connects the world. The trade fair was a source of inspiration and an important stimulus for many food service professionals. For five days, our food service marketplace was a well-attended, communicative, innovative and international platform and central point of contact for food service trends, business contacts and manifold taste experiences."

The Anuga exhibitors used the trade fair intensely to present new products and concepts to the thoroughly interested trade audience that was keen to place orders. A wide spectrum of innovative convenience and ready-to-cook products as well as vegan and health products provided numerous impulses. Many of the exhibitors targeted the growing out-of-home or to-go market. Both the visitors and the exhibitors were highly interested in learning information about trends and developments on the international food and drinks market. According to surveys, in addition to vegan food, vegetarian offers are also in high demand as well as organic and fair trade products. Also "free-from" concepts - for example lactose-free and gluten-free products are extremely trendy. Halal products had their own platform at Anuga. Themes such as the appreciation of food, the reduction of food waste primarily in the industrial countries, traceability, animal welfare and sustainability will continue to shape the discussions about food and drinks in the future.

Anuga in figures: 7,063 companies from 108 countries took part in Anuga 2015 on exhibition space covering 284,000 m<sup>2</sup>. These included 769 exhibitors from Germany and 6,294 exhibitors from abroad. The share of foreign exhibitors was 89 percent. Around 160,000 trade visitors from 192 countries attended Anuga 2015, the foreign share was 68 percent. The next Anuga will take place from 7 to 11 October 2017.

Source: Anuga

## Citrus Trend Lends Itself to Beverage Industry

Due to consumer's growing health perceptions in the beverage and flavor industry, the demand for citrus flavors is growing, according to Beverage Industry magazine. "Forward Thinking: It's Citrus," which appeared in the March 2011 issue of *Perfumer & Flavorist* magazine, also explored citrus flavor and fragrance trends, strengthening its presence in the industry. Two years later, citrus' refreshing effervescence continued to appeal to palettes, according to "Forward Thinking: Citrus in the Limelight" published in the April 2013 issue of *Perfumer & Flavorist* magazine. Topics included lemon, lime and orange flavors as well as grapefruit—the emerging en vogue citrus ingredient.

Fast forward to 2014, lemon was predicted to be one of the top three best-selling flavors in 2014, according to respondents of *Beverage Industry's* 2013 New Product Development Survey.

Popularity Not Fading in 2015. Beverage Industry also reports that Dolf DeRovira, president of Flavor Dynamics Inc., South Plainfield, New Jersey, says orange, lemon and lime flavors are the most popular, especially in soft drinks.

Other Trends Influencing the Citrus Craze. Health and wellness has been a cross-industry movement, so it's not surprising that it has extended to the beverage industry. Last year, Wixon Inc launched a programme featuring flavor modifiers for health and wellness beverages that enhance product satiety while reducing sugar in low-calorie beverages.

According to Beverage Industry, since 2011, 23% of citrus beverage launches carried the claim "No additives/preservatives," making it the second most prominent claim on beverage packages, according to Minerva Calatayud, strategic marketing director of beverage and sweet flavors at Kerry Inc., Beloit, Wisconsin. The article also cites citrus as a leading flavor in the health-and-wellness trend as it is known to be a good source of Vitamin C and many other essential nutrients. Back in 2013, Innova Market Insights predicted that healthy flavours and new generation superfruits were to be the next big hit in the global beverage market.

As an authentic natural flavour, Citrus flavors have capitalized on the growth of premium beverages. Industry experts have reported premium beverages increasing in sales, despite a weak economy. This occurs because "consumers are always looking for an indulgence or way to feel special," says Calatayud in the article. At the beginning of the year, Bell Flavors & Fragrances Europe revealed its flavour trends for 2015: the flavor comfort zone and the flavor innovation zone. Citrus landed in the flavor comfort zone: "The differentiation of citrus profiles is a global trend for 2015 whether it is for sweets, drinks or aromatic foods ... Examples include the dominating role of orange and lemon flavors in soft drinks and sweets such as fruit gums, ice cream and chocolate candy. Flavor innovations can be found in blood orange, tangerine and grapefruit," according to the report.

The Millennial Mindset: Integrating Exotic Fruits. "A growing sophistication of consumers and the desire for more exotic flavor profiles — especially driven by millennials — is changing the flavor profiles and innovation within the alcoholic and non-alcoholic beverage categories and increasing the need for more sophisticated citrus fruit profiles," Calatayud notes. Although millennials are driving the growth of exotic citrus varieties, they're also causing beverage-makers to innovate with new product launches more often, she notes. Millennials are also the driving force of the health foods trend, where manufacturers are creating flavors that offer essential vitamins and minerals.

Blending Flavors. The article continues to dive into flavor mixing, citing Dave Bowen, manager of citrus creation for Firmenich, Geneva, Switzerland, who adds that as beverages embrace fusion trends, citrus blends will continue to emerge.

Going Retro: Lemonade With a Twist: "As consumers are moving away from sugary carbonated beverages, we are seeing a significant and growing interest in lemonades, which are considered perceptibly healthy, retro-comforting and all-American," explains Anton Angelich, group vice president of marketing for Virginia Dare, New York, from the article.

The Future of Citrus. In the future, great-tasting citrus flavors and ingredients will fit consumers' demands for clean-label, simple and environmentally friendly flavors, Calatayud reports.

Source: [www.bevindustry.com](http://www.bevindustry.com)

## **Kerry Group Acquires Three US Companies**

Irish flavor company, Kerry Group continues its expansion through the recent acquisition of three US companies: Red Arrow Products, Island Oasis and Biothera Wellmune. According to the company's press release, the \$735 million acquisition is expected to expand Kerry's taste and nutrition portfolio for worldwide food, beverage and pharmaceutical applications. Though the breakdown of the purchase has not been disclosed, Kerry's existing facilities were able to fund the acquisition.

Maine-based Red Arrow Products serves the global meat, culinary and food industry creating natural and authentic natural savory, smoked and grilled flavors. Serving the US restaurant, leisure and hospitality markets "on-premise," Island Oasis supplies all-natural cocktail mixes and customized beverage combinations. Biothera Wellmune produces and markets its own branded natural food, beverage and supplement ingredients designed to strengthen the immune system, using yeast strains. Yeast strains have quickly become an increasingly viable option for sustainable ingredient production.

Stan McCarthy, CEO Kerry Group, commented that the acquisitions will "significantly expand [our] taste and nutritional solutions portfolio [and] bring a number of important innovative technology platforms to Kerry." He added that the purchase will provide "tremendous growth opportunities throughout Kerry's global developed and developing markets."

Source: Kerry

## **Givaudan opens perfumery hub and school in Singapore**

Givaudan has invested CHF 70 million in a perfumery school, creative center and production hub in Singapore. This adds to other investments made in the region earlier this year – a manufacturing facility in China and a technical center in Japan – illustrating the growth potential seen in the region and the need to have facilities based in the region. This will be Givaudan's first perfumery school outside France, and will be using the same curriculum to train future perfumers from Asia.

The location of the creative center and production hub will facilitate increased flexible research and development, while production and delivery are expected to produce up to 10,000 tonnes annually. When fully operational, the creative center will employ 170 people.

Source: Givaudan

## **More Kerry - Official Opening of Kerry Global Technology & Innovation Centre**

Taoiseach Enda Kenny T.D. officially opened Kerry Group's €100m Global Technology & Innovation Centre in Ireland. The project was supported by Department of Jobs through Enterprise Ireland. Kerry Group, the global taste & nutrition and consumer foods group, has opened a new Global Technology & Innovation Centre to serve the Group's global and regional customers in the EMEA [Europe, Middle East and Africa] region. Located on a 28 acre site, in the Millennium Business Park, Naas, the new Global Centre was officially opened by An Taoiseach Enda Kenny in the presence of Minister Richard Bruton, Minister Simon Coveney and the Kerry Group Board of Directors.

Kerry Group has invested €100m in establishment of the new Technology & Innovation Centre which today accommodates 800 research, product commercialisation, business development and business support positions, and which will accommodate a further 100 positions by the end of 2016. Speaking at the Official Opening Ceremony, Stan McCarthy, Kerry Group Chief Executive said, "Our new Global Technology & Innovation Centre will serve as a focal point for Kerry's customer engagement activities providing key customers with access to the Group's complete breadth and depth of technologies, scientific research, innovation and applications expertise, across food, beverage and pharmaceutical markets. In addition it will serve as the Group's Global Centre of Excellence for Nutrition and will optimise product differentiation in the marketplace while providing unrivalled speed to market". He said, "Today's consumer markets, and changing food and beverage consumption trends, call for renewed vigour in product innovation and development of nutritious product solutions and menu offerings. Kerry's approach to innovation capitalises on our total Taste & Nutrition technology offering and unique end-use-market applications capability." Mr McCarthy added that Kerry Group is extremely proud of the new world-class Technology & Innovation Centre which received tremendous support from the Irish Government, State Agencies and Kildare County Council. He also said that the Centre would support functional and business leadership development and scalable sustainable growth in Kerry well into the future.

Taoiseach Enda Kenny TD who officially opened the new Kerry Centre said, "This €100 million investment by Kerry Group is a welcome vote of confidence in Ireland and a great boost for the local economy in Naas. Kerry is a world leader in the food sector and the new Global Technology & Innovation Centre will further enhance Ireland's reputation for excellence in research, development and innovation in the food and beverage industry. This Government has been a strong supporter of Ireland's agri-food industry in securing the recovery. Through the Food Wise 2025 strategy we plan to increase agri-food exports to €19 billion and support another 23,000 new jobs." Minister for Jobs, Enterprise and Innovation Richard Bruton TD, whose Department provided support for this project, said, "At the heart of our jobs strategy is creating a powerful engine of Irish enterprise. Today's announcement by Kerry is a brilliant example of what we are trying to achieve. Here is a strong Irish multinational company, making world-leading products in Kildare, exporting them all around the world, investing €100m and creating 900 jobs from scratch. This project is an inspiration to our industrial efforts, I am delighted to be here to congratulate Stan and wish the team every success with this project". Minister Simon Coveney TD said, "The completion of this facility, a €100m project, is the largest single investment in food innovation ever by a company in Ireland. It represents a huge vote of confidence in the Irish economy. Equally importantly, it represents a resounding endorsement in the quality and expertise of Irish food science graduates to deliver food innovation in the most modern global facility producing world class ingredients and consumer products."

Source: Kerry

### **Fair Trade and Organic Ethanol available from Earthoil**

Earthoil has responded to increased global demand for sustainably-sourced ingredients with the launch of an organic, fair trade (Fair For Life), sugar cane-derived alternative to petro-ethanol. The latest addition to Earthoil's portfolio is produced sustainably from organic sugar cane at a family-owned facility in the San Antonio region of Brazil. Using technology designed to maintain the ecological and social harmony of the surrounding environment, the ethanol is grown, harvested and processed according to a tightly controlled, holistic system.

A crucial part of this approach is the elimination of crop burning prior to harvesting. By replacing this traditional - but environmentally damaging - step with biological pest controls, soil rotation and conservation techniques, the biodiversity in the region benefits and manufacturing advantages are gained. Sugar yields are also over 20% higher on average compared to the local non-organic alternative. The recovered sugar is then fermented into ethanol, triple distilled and filtered.

Equally important to the ethical platform of Earthoil's ethanol is its support for the local economy and community. A potential drop in employment due to mechanisation of the sugar cane harvest is addressed with a training programme designed to lead to a recognised qualification, which enables manual workers to be redeployed within the company. The social and educational needs of children are also met through a local weaving project set up to build citizenship and develop professional skills.

"Denatured ethanol is an essential and trusted component of a huge number of fragrance compositions," comments Richard Eyles, senior business development manager at Earthoil. "It is used as a fresh, clean, neutral base to create scents across personal care categories, as well as build complex fine fragrances. So with consumers continuing to favour organic and natural products in these sectors, it makes commercial sense to offer formulators a way to respond to this trend using a quality ingredient."

Source: Earthoil

### **Leatherhead Food International acquired by Science Group**

Leatherhead Food International Ltd, a subsidiary of Leatherhead International Limited, today announces a major investment by Science Group plc (AIM: SAG.L), a global science and technology advisory and product development organisation. In future, the business will operate as Leatherhead Research Ltd and will continue to provide technical consultancy services, including scientific research, regulatory advice, market insights, and testing services to the food and drink industry. "Leatherhead has strong history of operating in the global food & drinks marketplace dating back almost a century," says Dr Geoff Spriegel, Chief Executive, Leatherhead. "The last 12-18 months have been challenging for our business, particularly due to a legacy pension deficit, but with the investment from Science Group supported by the obvious synergies, our position is strengthened, both financially and technically. Working with like-minded scientists will undoubtedly lead to innovative solutions in the food industry, particularly at this time when the industry faces tough challenges and innovation is a vital part of the solution." Founded in 1919, Leatherhead Food Research is a trusted partner to the food industry and has developed a worldwide reputation for expertise in regulatory



consultancy, product development, consumer research, nutrition science, food safety, information services and training. The Science Group offers independent advisory and leading-edge product development focused on science and technology initiatives. Its specialist companies, Sagentia, Oakland Innovation and OTM Consulting, collaborate closely with their clients in key vertical markets to deliver clear returns on technology and R&D investments. “The global food and beverage marketplace is an exciting and growing sector. We view the acquisition of Leatherhead, a very well established brand with a strong client base and staff, as strengthening the Science Group’s position in this market, supplementing our existing Sagentia and Oakland Innovation operations,” remarks Martyn Ratcliffe, Chairman, Science Group plc. “The combined businesses form a substantial UK player in this global industry. “

Further details of the acquisition can be found at <http://www.sciencegroup.com/news/>

Source: Leatherhead Food International

### **Givaudan lays foundation for new flavours manufacturing facility in India**

Givaudan today laid the foundation for a new flavours manufacturing facility, in Ranjangaon, Pune, India. Mr. Bhushan Gagrani, IAS, Chief Executive Officer, Maharashtra Industrial Development corporation (MIDC), Maharashtra State joined Givaudan CEO Gilles Andrier, and Monila Kothari, Commercial Head APAC, Givaudan Flavours at the ceremony. Givaudan is demonstrating the importance of India, as one of its key high growth markets, to its growth strategy by investing CHF 55 million in this new world-class flavours manufacturing facility. This is Givaudan’s largest investment in India since 1998.

The new site, which is expected to open in 2018, will complement Givaudan’s existing flavour manufacturing facility in Daman. Givaudan Chief Executive Officer, Gilles Andrier said: “This major investment reflects India’s importance to Givaudan, and our overall 2020 strategy of investment in high growth markets. It shows our commitment to continue to collaborate closely with customers in Asia Pacific and provide differentiated solutions for local market needs.”

Expected to employ around 100 people, the Pune facility will boost Givaudan’s capabilities in liquids compounding, powder blending, emulsions, process flavours and spray drying in India. It also means customers from across the Indian sub-continent will benefit from faster access to Givaudan’s flavour solutions. Commenting on the opening of the new site Monila Kothari, Commercial Head APAC, Givaudan Flavours, said: “Givaudan has a 50 year heritage of operating in India and these are exciting times for us. The doubling of our flavour production capacity is testament to our commitment to India, and will help us continue to meet the dynamic needs of the Indian market for innovative products and great taste experiences.”

Source: Givaudan

### **Earthoil's fairtrade argan oil brings medical care to Moroccan women**

An all-female co-operative in the Souss Valley area of Morocco has gained better access to healthcare, thanks to its partnership with Earthoil to produce the only Fairtrade argan oil in the world. A full check-up was completed for each of the 60-strong group of women and a medical record created, with the majority having never previously seen a doctor. The initiative was funded by fair trade premiums, which have been paid as a result of Earthoil providing the co-operative members with a direct route to the global cosmetics market.

With proven nourishing properties, argan oil is ideal for use as a skin moisturiser and revitaliser. It also strengthens hair and nails, making it a popular ingredient in shampoos, conditioners and nail care products. The co-operative where Earthoil sources its argan oil was formed in 2007 to provide a way out of poverty. Traditional methods are used to extract the argan oil, and the women are involved at every stage in the production process meaning the oil has full traceability to its source.

Since it was established, the co-operative has had a very positive impact on the lives of its members and their families. The women now benefit from the security of a regular income, and healthcare knowledge and overall literacy have improved. The most recent fair trade premiums have been used to make working conditions more comfortable, as well as giving the access to medical professionals.

“Earthoil specialises in smallholder producer projects in remote areas of the world, and our work with argan oil is a great example of the benefits that ethical and sustainable practices can bring to local communities,” says Melissa Naish, Vegetable Oils Manager, Earthoil. “Demand for natural personal care products

continues to grow, and our argan oil – with its unique cosmetic properties and organic status – is perfectly positioned for cosmetics businesses looking to be part of this trend.”  
Source: Earthoil

# Product and Market Notes

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## Pesticide residues in essential oils

### Pesticide residues in essential oils: current findings<sup>1</sup>

#### Introduction

An essential oil is a composition of many substances, which is characteristic for each type of essential oil based on its origin: plant, production process or region where it comes from. But it is also possible to find substances that are not naturally occurring in the essential oil. Those substances are a result of the production process, starting from the cultivation of the plant material. Pesticide residues are not wanted in the essential oil but seem to be unavoidable under the conditions they are produced. They are present and can be detected.

#### What are pesticides?

Worldwide 90 – 95% of the agricultural area is cultivated conventionally. That means that besides fertilisers, which are mostly of mineral origin, pesticides are used for plant production. Pesticides are chemical compounds applied to:

- - kill, control or prevent pests, diseases, weeds
- - protect crops after harvest, in storage or during transport
- - regulate the growth of plants

Pesticides can be used “from seed to storage”, i.e. the whole life cycle of the product.

The pesticides are grouped and categorised according to their intended purpose:

- - insecticides (against lice, caterpillars...)
- - acaricides (against spider mites e.g. in fruit production)
- - herbicides (against weeds which are competing plants)
- - fungicides (against fungi including those causing rot, decay)
- - plant growth regulators (e.g. cereals with little straw)
- - rodenticides (against rats, mice)

Each pesticide needs a legal approval. The EU, for example, requires the proof of:

- harmlessness to people's health
- acceptability to the environment
- effectiveness against pests

The active substances and the commercial products are approved separately. The EU pesticide database covers 1,312 active substances. In Germany 1,427 products containing one or several active substances are allowed. For medicinal plants 292 products can be used. Some of them are very specific to one plant species or to a certain pest so the 292 products cannot all be used on each crop species.

As the governmental regulation is, in general, not harmonised between countries, when importing essential oils it is important to analyse pesticide residues of substances that are not allowed in your own country. Additionally it is necessary to take the persistency of substances like DDT into consideration and analyse for it, even though it might not have been applied to the current crop.

In organic agriculture no pesticides are allowed other than naturally occurring compounds or extracts. Between 5 – 10% of the total cultivated land is cultivated under organic conditions. Outside of this organic area, pesticides are involved in the cultivation of most crops to a greater or lesser extent.

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<sup>1</sup> This article is based on a paper given to the IFEAT conference in Rome, 2014, by Dr Jasmin Peschke, of Weleda AG, Switzerland.

## **What are residues?**

Residues are harmful substances that are applied and can still be found in the product.

## **What are contaminants?**

Contaminants are also harmful substances but they have not necessarily been applied deliberately. Sometimes you can trace contaminants in products that have not been treated because of pollution or cross contamination, among others. Examples of contaminants are pesticides, heavy metals, aflatoxins, plasticisers, to name the main ones. Even in organic cultivated products contaminants can sometimes be found. They are not residues coming from a direct application but they can occur by wind drift from a neighbouring area that has been treated or from the land if the substance is persistent and has been used before conversion into organic agriculture.

## **Pesticide residue regulation**

As the use of pesticides is quite common, residues can easily be found and therefore they have to be regulated by defining maximum residue levels (MRLs). An MRL is the upper legal level of concentration of a substance that can be tolerated with respect to the health and safety of consumers.

For medicinal products the European Pharmacopoeia describes, in chapter 2.8.13, a list of substances with limits that are considered to be acceptable for herbal drugs and medicinal herbal products.

For substances that are not listed, the maximum residue levels given in the European regulation EC No 396/2005 are relevant. This regulation defines the MRLs for food and feed.

For substances that are neither in the PhEur nor in the EC regulation, a calculation formula is given, taking the ADI (acceptable daily intake), the MDD (maximum daily dose) and the body mass into account.

Note: for essential oils there is no specific regulation.

## **Contaminants in essential oils**

The plants for the production of essential oils come either from wild collection, if they are indigenous like rosemary in Spain or sage in Albania, or they are cultivated like roses, oranges, peppermint, etc. Either the plants are treated with various pesticides or, if not treated directly, contamination can occur at any stage of the production process (like by wind drift, cross contamination, or during transport and/or storage).

## **Literature**

There is a substantial literature on pesticide residues in essential oils. The key conclusions from this are that citrus oils produced by cold pressing can be found to contain actionable levels of pesticides. In distilled oils there were some cases of pesticide residues found, but in general they were very low.

## **Transfer from the plant into the essential oil**

### **Distilled oils**

Only pesticide residues that are hydrophilic, thermostable and volatile can be carried over into the essential oil during distillation. As there are not so many pesticides with these characteristics, the pesticide levels found in the distilled oils are usually low.

### **Cold pressed oils**

The essential oil of citrus fruit is located in the pericarp, the peel. Due to the cold pressing process and the lipophilicity of the majority of the pesticides, the residues sticking on the peel will most likely be transferred into the essential oil. Due to this, cold pressed citrus oils can be found to contain actionable levels of pesticide residues.

## **Pesticide analysis data base evaluation**

The working group on contaminants of the German Medicines Manufacturers' Association (BAH) maintains a data base on results of pesticide analysis performed since 2000. This data is evaluated regularly. The samples were taken from routine quality controls of the participating companies and represent the current situation of pesticide contamination of essential oils. The results of these pesticide analysis from the years 2006 to 2013 (8 years) are:

- Altogether, 589 samples of 28 different essential oils were analysed.
- On average, each sample was tested for 217 substances, i.e. a total number of 127,517 analytical results.
- 314 samples had no pesticide residues found, which represents 53% of all samples.
- 275 samples (47%) had at least one positive analytical result. As pesticides were detected in 1,150 cases, there were samples with more than one residue. The pesticide findings represent 0.90% of all results.
- 

## **Distilled essential oils**

376 samples of 25 different distilled essential oils were tested, corresponding to 73,541 analytical results.

In 242 samples no pesticide residues were detected at all, which represents 64% of the distilled oil samples. There were 402 positive findings which represents 0.55% of the test results. In 128 cases the pesticide levels were above the MRL for herbal drugs, which represents 0.17% of all tests.

### **Neroli oil**

In the 65 samples of neroli oil tested, there were 199 positive results (of about 14,000 results in total). 77 of them were above the MRL (39%), the most frequent substances found were biphenyl and chlorpyrifos-ethyl.

### **Rosemary oil**

In total 49 samples were tested, 29 of them were tested for biphenyl. Half of them exceeded the MRL of 0.1ppm. The highest concentration was 0.5 ppm.

### **Eucalyptus oil, caraway oil and lavender oil**

34 samples of eucalyptus oil and 25 samples of caraway oil were tested, each of them had 3 positive findings, which were below the MRL. In 19 samples of lavender oil tested, there was only 1 positive result, and this was below the limit.

## **Cold pressed essential oils**

213 samples of 3 different citrus oils were tested. In 72 samples no pesticide residues were detected, which represents 34% of all samples. In total 53,976 analytical tests were performed, of which in 647 cases pesticides were detected, which represents 1.2% of all data. 264 results were higher than the MRL which is 0.5% of all findings.

### **Orange oil**

On average 4% of the orange oil samples had results exceeding the MRL.

### **Lemon oil**

The substances responsible for the most frequent exceeding of MRL were detected in about a quarter of the total number of lemon oil samples. For the other substances that were analysed on average 2% of the samples had levels above the MRL.

## **Mandarin oil**

For Chlorpyrifos-ethyl over half of the samples tested exceeded the MRL. For the other substances about a third of the samples exceeded the MRL.

## **Conclusions**

- the majority of essential oils, both distilled ones and cold pressed ones, do not contain any pesticide residues
- Distilled oils in general are less contaminated than cold pressed oils – this corresponds to findings in the published literature.
- The MRL set for herbal drugs is exceeded only in a few cases (0.31% of all results).
- In case of a pesticide residue exceeding the MRL, the potential risk with oral intake can be calculated on the basis of the ADI (acceptable daily intake).
- It is reasonable to apply a risk based approach in testing essential oils for pesticide residues in routine quality control.

## **How to proceed in quality control**

The database evaluation contributes to the discussion of the European Pharmacopoeia expert group on contaminants in essential oils and whether a separate regulation is needed. The findings justify a differentiated approach: test cold pressed oils regularly and test distilled oils according to a risk assessment.

The recommendation of the working group is that the current chapter in PhEur (2.8.13) is a reasonable basis for the assessment of pesticide residues in essential oils. It represents a “worst case scenario” because the limits are set for herbal products. Essential oils, in contrast, are very concentrated and are never used or ingested in quantities like the ones for herbs. Therefore the limits are even safer. And, as they are exceeded only in a few cases, a new regulation within the European Pharmacopoeia is not needed.

## **Strategy for the future**

In the analysis and evaluation of results, no differentiation was made between conventional and organic cultivation systems. As in organic agriculture pesticides are not applied, residues most likely don't occur at all or in much lower levels. Absolutes, concretes and other extracts were not considered but need to be assessed. Many essential oils are used in cosmetics. Consumers do not expect a cocktail of pesticides to be found in the products. In fact there is a strong and continuing trend to green, organic, sustainable, bio, pure and natural qualities in the market. While it is necessary to define and regulate residue levels, the key strategy must be to avoid the use of pesticides, and to take positive precautions against cross contamination from other sources.

# Price Information

## Conventional essential oils

PLEASE REMEMBER THAT THESE ARE ONLY PRICE INDICATIONS.

Price indications collected from the markets are given for a range of essential oils, below. The oils are grouped *for convenience only* into Spice Oils, Seed Oils, Citrus Oils, Herb Oils and Perfumery Oils. Prices are wholesale for quantities of 25kg or more unless otherwise stated.

### Spice Oils

Product	Origin/Grade	Prices per KG (US\$)
Clove bud	Indonesian	\$21/kg 200kg lots
	Indian	\$84/kg 1 kg lots
	Madagascan	\$75/kg 1 kg lots
Clove stem	Indonesian	\$15/kg container
	India	\$50/kg
	Madagascar	\$36/kg 200 kg lots
Clove leaf	Indonesian min. 73%	\$11.00/kg, container
	Indonesian min. 80%	\$12.50/kg
	Indonesian min. 82%	\$13/kg
	Madagascan	\$17/kg
	Indonesian	\$46/kg
	Indonesia	\$18/kg container
Cinnamon bark	Sri Lankan 60/65%	n/a
Cinnamon leaf	Sri Lankan	\$70/kg 1 kg lots
	India	\$20/kg
Cassia bark	China	\$35/kg; \$70 1 kg lots
Black pepper	Sri Lankan	\$218/kg 1 kg lots
	Indian	\$125/kg; \$195 1 kg lots
Nutmeg	Indonesian (myristicin 7%)	\$30/kg
	Indonesian (myristicin 2%)	\$27/kg
	Indonesian (safrole free)	\$62/kg
Ginger	Chinese	\$105/kg
	Indonesia	\$95/kg
	Indian	\$80/kg
	Indonesia (red)	\$98/kg
Pimento leaf	Jamaican	\$140/kg
	Jamaican	\$90 container
Pimento berry	Jamaican	€210/kg
	Jamaican	\$154 1 tonne lots
Cardamom	Guatemala	\$185/kg container
		\$210/kg spot

### Spice Seed Oils

Product	Origin/Grade	Prices per KG
Aniseed	China	\$13-16 CIF NW Europe; \$75/kg 1 kg lots
	India	\$25/kg
Star Anise	India	\$120/kg
Coriander seed	Russian	\$200/kg
Coriander herb	Russian	\$100/kg drum
Cumin seed	Egypt	\$285/kg 1 kg lots

## Citrus Oils

Product	Origin/Grade	Prices per KG
Orange (sweet)	Brazilian	\$16/kg; \$30/kg 1 kg lots
	Italy (b/orange c/pressed)	\$33/kg
	Brazil (pera)	\$7/kg container
Orange (bitter)	Italian (c/pressed)	\$45/kg
Bergamot oil	Ivory Coast/Italy	\$80/kg; \$135/kg 1 kg lots
Lemon	Italian	\$58/kg 1 kg lots
	Italian (c/pressed)	\$35
	Argentina	\$55-\$58/kg container
	Brazil	\$55/kg
Lime (distilled)	Italian	n/a
	Mexico/Peru	\$46/kg container; \$62/kg
Lime (cold pressed)		\$25/kg
Mandarin (red)	Italy	\$80/kg
Grapefruit (pink)	Argentina	\$42/kg; \$50/kg 1 kg lots
Grapefruit (white)	France	\$40/kg

## Herb Oils

Product	Origin/Grade	Prices per KG
Basil	Comores	\$125/kg
	Egypt	\$82/kg; \$150/kg 1 kg lots
Lavender	Bulgaria	\$96/kg
	French	\$250/kg
	English	\$200/kg
	Russia	\$95/kg drum
Lavandin	French Grosso	\$30/kg
Spike Lavender	Spain	\$110/kg
Mints	Indian piperita	\$27/kg
	India, mentha arvensis crude, L-menthol 72%	\$13/kg
Menthol	Indian, bold crystals	\$19/kg
	Indian, medium crystals	\$15/kg
	China	\$18/kg
Peppermint menthofuran 3%	China	\$23.50/kg
Peppermint	China	\$15/kg container
Peppermint dementholised	Indian	\$13/kg
Menthone 80/20	Indian	\$16/kg
Menthone 90/10	Indian	\$19/kg
Spearmint 60% carvone	China	\$23/kg
Chamomile (German)	German blue	\$670/kg
	Morocco (wild)	\$450/kg
	Egypt (blue)	\$1,000/kg
Chamomile (Roman)	UK	\$1000/kg
Sage	Croatia	\$130/kg
Rosemary	Portugal/Spain/Tunisia	\$55
	Spain	\$68/kg drum
	France	\$78
Marjoram	Spain (wild)	\$210/kg 1 kg lots
Thyme	Spain	\$67/kg; \$85 1 kg lots



## Perfumery Oils

Product	Origin/Grade	Prices per KG
Eucalyptus globulus & other high cineole types	China	\$13/kg container; \$35/kg 1 kg lots
	Australian	\$44/kg
	China	\$38/kg 1kg lots
	Madagascar	\$31/kg
Eucalyptus citriodora	China	\$49/kg 1 kg lots
	Madagascar	\$25/kg
Litsea cubeba	Spain	\$22/kg
	China	\$21/kg container
Ylang ylang	Comores: Extra S	n/a
	Comores : Première	\$225/kg
	Comores : Deuxième	\$180/kg
	Comores : Troisième	\$95/kg
	Comores: Complet	\$150/kg 1 kg lots
	Madagascar (grade II)	\$80/kg
Ylang (cananga)	Indonesia	\$61/kg 1 ton lots
Patchouli - Indonesia	Sulawesi min 26% pa	\$48/kg
	Sulawesi min 30% pa	\$51/kg
	Sulawesi min 30% pa, light	\$52/kg
	Sumatra min 30% pa	\$62/kg
	Sumatra min 32% pa	\$67/kg
	Sumatra min 34% pa	\$72/kg
	Sumatra min 30% pa, light	\$64/kg
	Rose	Bulgaria
Geranium	Egypt	\$125/kg
	Egypt	\$120/kg
	China	\$155/kg
	Madagascar	\$310/kg
Rose Geranium	Madagascar/France	\$225/kg
Niaouli (Cineole 1,8) (Malaleuca quinquenervia type I)	Madagascar	\$16/kg; \$60/kg 1 kg lots
Niaouli Viridiflora (Malaleuca viridiflora type II)	Madagascar	\$20/kg
Petitgrain	Paraguay	\$58/kg drum; \$98/kg 1 kg lots
Sandalwood	India	\$2,900/kg
	East Indies	\$2,500/kg
	Australian	\$2,025/kg
Cedarwood	USA	\$52/kg
	China	\$13/kg container; \$50/kg 1 kg lots
Frankincense	Somalia/France	\$270/kg
Citronella	Chinese	\$18/kg container; \$23/kg; \$53 1 kg lots
	Sri Lanka	\$40/kg container
	Indonesia	\$16/kg
	Indian	\$18/kg
Lemongrass	Indian	\$16/kg container; \$37/kg 1 kg lots
	Madagascar (C. giganteus)	\$55/kg
Palmarosa	Indian	\$38/kg; \$130/kg 1 kg lots
Vetiver	Indonesian	\$180/kg; \$380/kg 1 kg lots
	Indonesian	\$190 rectified

Product	Origin/Grade	Prices per KG
	Indonesian, molecular dist.	\$225/kg
Tea Tree	Australia	\$44/kg; \$90/kg 1 kg lots
	Australia, lemon scented	\$140/kg
Guaiacwood	Paraguay	\$25/kg drum
Fennel, bitter	Spain	\$97/kg
Juniperberry	India	\$120/kg; \$260/kg 1 kg lots
Myrrh	India (extract)	\$133/kg
	India (distilled)	\$270/kg; \$395/kg 1 kg lots

# Price Information

## Organic essential oils

PLEASE REMEMBER THAT THESE ARE ONLY PRICE INDICATIONS.

Price indications collected from the markets are given for a range of essential oils, below. The oils are grouped *for convenience only* into Spice Oils, Seed Oils, Citrus Oils, Herb Oils and Perfumery Oils. Prices are wholesale for quantities of 25kg or more unless otherwise stated.

### Spice Oils

Product	Origin/Grade	Prices per KG (US\$)
Clove bud	Indian	\$150/kg
Clove leaf	Indian	\$75/kg
Cinnamon bark	Sri Lankan	\$420/kg
Cinnamon leaf	Sri Lankan	\$110/kg
Nutmeg	Indonesian	\$172/kg
Ginger		\$270/kg
	India	\$170/kg drum

### Spice Seed Oils

Product	Origin/Grade	Prices per KG
Star Anise	China	\$180/kg
Cumin seed	Egypt	\$90/kg

### Citrus Oils

Product	Origin/Grade	Prices per KG
Orange (sweet)	Italian (c/pressed)	\$36/kg
Orange (bitter)	Italian (c/pressed)	\$135/kg
Bergamot	Italy (c/pressed)	\$195/kg
Lemon	Italian (c/pressed)	\$60/kg
	Italian (c/pressed)	\$71/kg
	Argentina	\$75
Mandarin (red)	Italy	\$225/kg
Mandarin (green)	Italy	\$187/kg
Clementine	Italy	\$120/kg
Petitgrain (C. aurantium)	Paraguay	\$110/kg

## Herb Oils

Product	Origin/Grade	Prices per KG
Basil	Egypt	\$187/kg
	India	n/a
Lavender	France	\$210/kg
Lavandin	French Grosso	\$55/kg
Mint, peppermint	USA	\$90/kg
	India	\$65/kg drum
Mint, Cornmint	India, mentha arvensis	\$52/kg
Mint, spearmint, <i>M. spicata</i>	USA	\$112/kg
Chamomile (German)	Nepal	\$780/kg
	India	\$1,250/kg
Chamomile (Roman)	Hungary	\$1,500/kg
Sage	Croatia	\$240/kg
Rosemary	Spain	\$42/kg
	Tunisia	\$25/kg
Marjoram	Spain	\$330/kg
Thyme	Hungary	\$300/kg
	India	\$65/kg
Fennel	India	130/kg

## Perfumery Oils

Product	Origin/Grade	Prices per KG
Eucalyptus radiata & other high cineole types	China	\$64/kg
E. globulus	India	\$45/kg (60%)
	India	\$50/kg (80%)
E. polybractea	Australian	\$135/kg
E. smithii	South Africa	\$75/kg
Eucalyptus citriodora	Brazil	\$52/kg
	India	46/kg
Litsea cubeba	Spain	\$35/kg
Ylang ylang	Comores: I	\$225/kg
	Comores : II	\$180/kg
	Comores : III	\$210/kg
	Comores: Complet	\$330/kg
Patchouli	Indonesia	\$175/kg;
Geranium	Egypt	\$375/kg 1 kg lots
Sandalwood	Sri Lanka	\$1,950/kg 1 kg lots
Cedarwood	USA	\$63/kg
Naouli		\$97/kg
Ravinsara	Madagascar	\$275/kg 10 kg lots
Frankincense	Somalia/France	\$525/kg 1 kg lots
	India ( <i>B. serrata</i> )	\$78/kg drum
Pine ( <i>P. silvestris</i> )	Hungary	\$190/kg
Citronella	Sri Lanka	\$100/kg

Product	Origin/Grade	Prices per KG
	India	\$63/kg
Lemongrass	Nepal	\$75/kg
Palmarosa		\$80/kg
	India	\$70/kg
Vetiver	Indonesian	\$450/kg 1 kg lots
	Indian	\$350/kg
Tea Tree	Australia	\$90/kg;
	Australia, lemon scented	\$225/kg
Fennel, sweet	Bulgaria	\$150/kg
Juniperberry	India	\$225/kg
Myrrh	Africa	\$1,800/kg

# Suppliers of Equipment

## Suppliers to the African market

The distillation and extraction industry in Africa is relatively small and localised outside of the North African centers of Egypt and Morocco, and Southern Africa (South Africa, Swaziland). New entrants to the industry can find it hard to identify suppliers of equipment (stills, condensers, extractor vessels etc) in stainless steel, steam boilers, and other necessary materials (drums, jugs, filter papers etc).

The development of the industry in Africa would benefit greatly if there was greater sharing of information on the location of suppliers. New entrants would find it easier to identify necessary suppliers, and the concentration of orders on particular suppliers would encourage the development of skills and expertise – this is particularly necessary in the areas of fabrication of stainless steel vessels and condensers.

Some contacts of companies involved in the manufacture of distillation/extraction equipment or the capability to do so (primarily the capability to work with stainless steel) or supply of materials based in East Africa are given below.

**The Newsletter would welcome information from Readers on other suppliers of relevant equipment and materials from all regions of Africa, so that the listing can be expanded. Please send any information to [marketinsider@intracen.org](mailto:marketinsider@intracen.org)**

The contacts are provided as a service only. NO RECOMMENDATION IS IMPLIED.

### 1. MANUFACTURE OF STAINLESS STEEL DISTILLATION EQUIPMENT:

#### KENYA

ASL – Heavy Fabrication Division  
Ramco Industrial Park  
Mombassa Road  
PO Box 18639-00500  
Nairobi. Kenya  
Tel: +254 20 821567/820296/820394  
Fax: +254 20 820169/651893  
[bm@heavyfab.co.ke](mailto:bm@heavyfab.co.ke)  
Attn: Mr Ve Balamurali, General Manager

Warren Enterprises Ltd  
PO Box 8251  
Nairobi. Kenya  
Tel: +254 20 8561 932/3/4  
Fax: +254 20 8561 013  
Attn: Mr S Ramaswamy, Managing Director

Morris Steel & Company  
Mogadishu Road  
PO Box 18310  
Nairobi. Kenya  
Tel: +254 20 533 627  
Attn: General Manager

#### UGANDA

**Specialised Welding Services** (previously Kasise Kleinsmedie Uganda Ltd)  
Jinja Road, Plot 96  
PO Box 40115

Nakawa Vocational Training Center  
Kampala  
Uganda  
Tel: +256 (776) 405060/405070/405080  
+256 (772) 227 003 (Samantha Moray)  
[sam.moray@sws.co.ug](mailto:sam.moray@sws.co.ug)  
Attn: Samantha Moray, General Manager  
[www.sws.co.ug](http://www.sws.co.ug)

## **MADAGASCAR**

Societe Aris Trading  
Lot VB 81X Ambatoroka  
101-Antananarivo. Madagascar  
Tel: +261 20 24 264 96  
Fax: +261 20 22 290 24  
[aristrading@freenet.mg](mailto:aristrading@freenet.mg)  
Attn: Mr James Davidson

ATICOM  
Lot IT 91A Itaosy  
102 Antananarivo – Atsimondrano. Madagascar  
Tel: +261 32 07 744 34  
[orasatajoso@yaho.fr](mailto:orasatajoso@yaho.fr)  
Attn: Josoa Andriamorasata

## **SOUTH AFRICA**

EDESA (Essential Distillation Equipment)  
PO Box 123  
Riebeeck Kasteel 7306  
Western Cape. South Africa  
Tel: +27 (82) 334 3324  
fax: 0866 088508  
[info@edesa.co.za](mailto:info@edesa.co.za)  
[werner.ede@vodamail.co.za](mailto:werner.ede@vodamail.co.za)  
[www.edesa.co.za](http://www.edesa.co.za)  
[www.stillpure.co.za](http://www.stillpure.co.za)  
Skype: werner.bester2  
Attn: Werner Bester  
Manufacture of distillation equipment and sales of used equipment.

BENCO PLANT & ENGINEERING (PTY) Ltd  
159 Van Eeden Crescent, Rosslyn, Karin Park  
P O Box 59. Pretoria, Gauteng. South Africa  
Tel: +27 (12) 541-0398  
Fax: +27 (12) 541-0399  
Attn: Sloam Durbach  
Manufacturer of distillation equipment and steam boilers

POWERSAVE  
PO Box 699  
Hilton 3245. South Africa  
Tel (cell): +27 82 493 8670  
Fax: +27 33 34 33 755  
Attn: Greg Rowe  
[gregrowe@telcomsa.net](mailto:gregrowe@telcomsa.net)  
Manufacture of steam distillation plants

Henry S Komar & Associates CC  
2 Hebel Road, Roodepoort, Gauteng, South Africa  
Postal address: PO Box 994, Honeydew 2040, South Africa  
Tel: +27 11 760 2718  
Fax: +27 11 760 1079  
Attn: Stan Kumar, CEO  
[info@komar.co.za](mailto:info@komar.co.za); [sales@komar.co.za](mailto:sales@komar.co.za)  
[www.komar.co.za](http://www.komar.co.za)

Manufacture of stainless steel distillation and processing equipment. Also sales of secondhand equipment.

THE PROCESS TEAM CC  
37 Nelson Road, Amanzimtoti  
Kwa-Zulu Natal 4126. South Africa  
Attn: Peter Myburg

Design and manufacture of stainless steel distillation equipment.

## **2. SUPPLIERS OF STEAM BOILERS**

### **MADAGASCAR**

ARTICOM  
Lot IT 91A Itaosy  
102 Antananarivo – Atsimondrano. Madagascar  
Tel: +261 32 07 744 34  
[orasatajoso@yahoo.fr](mailto:orasatajoso@yahoo.fr)  
Attn: Joso Andriamorasata

ARTICOM make a simple, low pressure, wood fired steam boiler.

### **KENYA**

Industrial Boiler Products Co. Ltd.  
Kampala Road, Industrial Area  
Nairobi, Kenya.  
+254 733 700175  
[mail@industrialboilerproducts.co.ke](mailto:mail@industrialboilerproducts.co.ke)  
[peter.fernandes@industrialboilerproducts.co.ke](mailto:peter.fernandes@industrialboilerproducts.co.ke)  
Peter Fernandes  
[www.ibp.co.ke](http://www.ibp.co.ke)  
Indian manufactured steam boilers; biomass fired.

Boiler Consortium Africa (BCA) Ltd  
PO Box 60780. Nairobi. Kenya  
Tel: +254 20 557837/ 536793/ 4349310  
Tel: +254 722 750131/ 703511/  
Fax: +254 20 735 331177  
Barry Corlines  
[info@boilersafrica.com](mailto:info@boilersafrica.com)  
[www.boilersafrica.com](http://www.boilersafrica.com)

BCA design, manufacture and commission boilers, included wood fired steam boilers, and are agents for Riello in East Africa.



## **SOUTH AFRICA**

Combustion Technology South Africa  
PO Box 30047. Tokai, 7966 Cape Town, South Africa  
Tel: +27 21 715 3171  
Fax: +27 21 715 6297  
[www.combustiontechnology.co.za](http://www.combustiontechnology.co.za)

Combustion Technology are the exclusive Southern African distributors of Riello burners and Garioni Naval Boilers.

BENCO PLANT & ENGINEERING (PTY) Ltd  
159 Van Eeden Crescent, Rosslyn, Karin Park  
P O Box 59. Pretoria, Gauteng. South Africa  
Tel: +27 (12) 541-0398  
Fax: +27 (12) 541-0399  
Attn: Sloam Durbach  
Manufacturer of distillation equipment and steam boilers

CAPE BOILER  
16 Natal Street, Parden Island, Cape Town, South Africa  
Tel: +27 21 511 6652  
Fax: +27 511 4415  
Attn: Mr Nic Kellerman

## **INDIA**

Firetech Boilers Pvt Ltd  
FIRETECH HOUSE, No.211, 2nd Cross, 38th Main,  
B.T.M Layout, 2nd Stage, Bangalore 560 068. India  
Tel: +91-80-6683686; Fax: +91-80-6683921  
Email: [firetech@vsnl.net](mailto:firetech@vsnl.net)  
Manufacture of wood fired steam boilers. Indian manufacturer, but has supplied boilers to Africa.

## **AUSTRIA**

Binder GMBH  
Mitterdorferstr. 5  
8572 Barnbach  
Austria  
Email: [office@binder-gmbh.at](mailto:office@binder-gmbh.at)  
Tel: +43 3142 22544-0  
Fax: +43 3142 22544-16  
[www.binder-gmbh.at](http://www.binder-gmbh.at)

Binder Agents in UK:  
Wood Energy Ltd, Severn House, 1-4 Fountain Court, Bradley Stoke, Bristol. BS32 4LA  
[www.woodenergyltd.co.uk](http://www.woodenergyltd.co.uk)

Kohlbach Group  
Grazer StraBe 23  
A-9400 Wolfsberg  
Austria  
Email: [office@kohlbach.at](mailto:office@kohlbach.at)  
Tel: +43 4352 2157-0  
Fax: +43 4352 2157-290  
[www.kohlbach.at](http://www.kohlbach.at)

## USA

Hurst Boiler & Welding Company, Inc.  
100 Boilermaker Lane  
Coolidge, GA 31738-0530  
USA  
Phone: +1 229-346-3545  
Fax: +1 229-346-3874  
Email: [info@hurstboiler.com](mailto:info@hurstboiler.com)  
[www.hurstboiler.com](http://www.hurstboiler.com)

### 3. SUPPLIERS OF MATERIALS AND EQUIPMENT

#### (a) Forklift trucks/pallet trucks

Forktruck Solutions  
16 Kiewiet Close, Okavango Park, Brackenfel 7560, Cape Town. South Africa  
Postal address: PO Box 3221, Durbanville 7551. South Africa  
Tel: +27 21 982 1142 and +27 21 981 2649;  
Cell: +27 83 2848 557  
Fax: +27 21 982 1141  
Attn: Dirk van der Westhuizen  
[dirk@forktrucksolutions.co.za](mailto:dirk@forktrucksolutions.co.za)  
[www.forktrucksolutions.co.za](http://www.forktrucksolutions.co.za)

Sales and rental of new and used forklift trucks. Also pallet jacks/stackers and range of other warehouse equipment.

#### (b) Hoists and lifting equipment

Blue Cranes,  
Crane House, 10 Mansell Road, Killarney Gardens, Minerton, Cape Town, South Africa  
Postal address: PO Box 702, Melkbosstrand 7437. South Africa  
Tel: +27 21 556 0498/9  
Fax: +27 21 556 0486  
Attn: Mr Kobus Steyn  
[joseph@bluecranes.co.za](mailto:joseph@bluecranes.co.za)  
[www.bluecranes.co.za](http://www.bluecranes.co.za)

Manufactures full range of hoists, beam girder cranes and lifting equipment. Sole supplier of Liftket electric chain hoists and wire rope hoist units. Repairs and spare parts supply service. Supply of associated slings, chains, blocks etc.

#### (c) Essential oil drums:

Greif supply a range of steel and coated drums, and are present in 45 countries around the world.

Greif Kenya Ltd  
Box9036 - Unga Street  
Shimanzi – Mombasa. Kenya  
Tel: +254 41 2495591  
Fax: +254 41 2494038  
[pascal.wanyonyi@greif.co.ke](mailto:pascal.wanyonyi@greif.co.ke)  
Attn: Pascal Wanyonyi

Greif Nigeria Ltd  
Apapa, Nigeria  
Phone +234 (01) 587 0866  
Fax +234 (01) 587 3084  
[vanleer@linkserve.com.ng](mailto:vanleer@linkserve.com.ng)

Attn: Olukunle Obadina,

Greif South Africa Ltd  
Vanderbijlpark, South Africa  
Phone +27 (0) 16 930 1100  
Fax +27 (0) 16 930 1106  
[carl.williams@grief.com](mailto:carl.williams@grief.com)  
Attn: Carl Williams  
Website: [www.greif.co.za](http://www.greif.co.za)

Greif Mozambique  
Maputo, Mozambique  
Phone +258 21 720153  
Fax +258 21 720724  
[vanleer@vironn.com](mailto:vanleer@vironn.com)

Greif Egypt  
Cairo, Egypt  
Phone +20 2588 1110  
Fax +20 2593 3889  
E-mail: [koracons@link.com.eg](mailto:koracons@link.com.eg)  
Attn: Ayman Korra

Greif Algeria  
Arzew, Algeria  
Phone + 213 41473723 / + 213 41473724  
Fax + 213 41473730  
[Mohamed.Gherbi@Greif.com](mailto:Mohamed.Gherbi@Greif.com)  
Attn: Mohamed Gherbi

## CHINA

**Guangzhou New Jinrong Coopery Co. Ltd.**  
No.7 Huancui xi road  
Cuishanhu new district  
Kaiping  
Guangdong, China  
**Ms. Lucinda Lux**  
Tel : +86 159 14338971,+86 18620468156, 0750-2889978  
Fax: +86 7502889978  
Email: [newjinrong@163.com](mailto:newjinrong@163.com); [paul\\_chew@163.com](mailto:paul_chew@163.com)  
SKYPE: xpyllj74

## INDIA

**Al-Can Exports Pvt Ltd**  
Sheetal Industrial Estate, Kashmirira Road,  
Bhayander East District,  
Thane 401 105  
India.  
Tel: +91 22 2819 3122  
Fax: +91 22 2814 2477  
Email: [info@alcanexports.com](mailto:info@alcanexports.com)  
Large range of aluminium flasks and bottles.

## FRANCE

**Tournaire SA**  
70, Route de la Paoute  
Le Plan.  
BP 71004  
06131 Grasse Cedex

France  
Tel: +33 493 09 34 34  
Fax: +33 493 09 34 00  
Email: [tournaire@tournaire.fr](mailto:tournaire@tournaire.fr)  
Tournaire do a very wide range of aluminium bottles.

**(d) Secondhand/used equipment**

Secondhand equipment, particularly stills and condensers, can represent very good value. Details are given for 2 companies which have experience of shipping worldwide, and sometimes have distillation equipment in stock.

Perry Process Equipment Ltd  
Station Road  
Aycliffe Business Park  
Newton Aycliffe  
County Durham. DL5 6EQ. UK  
Phone: +44 1325 315111  
Fax: +44 1325 301496  
[info@perryprocess.co.uk](mailto:info@perryprocess.co.uk)  
Website: [www.perryprocess.co.uk](http://www.perryprocess.co.uk)

Perry Process Equipment is the European headquarters of the Perry Group of companies, which has operations around the world and is one of the worlds largest dealers in secondhand process equipment.

Centriplant Ltd  
Littlemead Industrial Estate  
Alfold Road  
Cranleigh  
Surrey. GU6 8ND  
UK  
Phone: +44 (01483) 271507  
Fax: +44 (01483) 278183  
Contact: Mark Williams [markw@centriplant.co.uk](mailto:markw@centriplant.co.uk)  
Website: [www.centriplant.co.uk](http://www.centriplant.co.uk)

Centriplant has distillation plants on an occasional basis, but always have a range of stainless steel tanks, and bottling/packing lines that could also be of interest to producers.

# Events Calendar

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## Flavorcon 2015

15-17 November 2015. Atlantic City, USA

[www.flavorcon.com](http://www.flavorcon.com)

## Perfumes & Cosmetics Congress – Regulatory Affairs

18-19 November 2015. Chartres, France

[www.congres-parfumscosmetiques.com/en](http://www.congres-parfumscosmetiques.com/en)

## From Flowers to Fragrances: challenges and innovations

26 November 2015. Grasse, France

[www.pole-pass.fr](http://www.pole-pass.fr)

## Fi Europe & Ni 2015

1-3 December 2015. Paris, France

[www.foodingredientglobal.com/en/europe/home](http://www.foodingredientglobal.com/en/europe/home)

## 7<sup>th</sup> Annual Bio-Based & Sustainable Products Summit

13-14 January 2016. San Diego, USA

[www.infocastinc.com/events/biobased-chemicals](http://www.infocastinc.com/events/biobased-chemicals)

## Cosme Tokyo 2016

20-22 January 2016. Tokyo, Japan

[www.cosmetokyo.jp/en/ex](http://www.cosmetokyo.jp/en/ex)

## Cosme Tech 2016

20-22 January 2016. Tokyo, Japan

[www.cosme-i.jp/en](http://www.cosme-i.jp/en)

## International Spice Conference

21-24 January 2016. Goa, India

[www.internationalspiceconference.com](http://www.internationalspiceconference.com)

## American Spice Trade Association Annual Meeting

10-13 April 2016. Scottsdale, AZ, USA

[www.astaspice.org](http://www.astaspice.org)

## Beauty Eurasia 2016

21-23 April 2016. Istanbul, Turkey

[www.beauty-events.com/Beauty-Eurasia](http://www.beauty-events.com/Beauty-Eurasia)

## Cosmobeaute Vietnam

21-23 April 2016. Saigon, Vietnam

[www.beauty-events.com/Cosmobeaute-Vietnam](http://www.beauty-events.com/Cosmobeaute-Vietnam)

## World Perfumery Congress 2016

13-15 June 2016. Florida, USA

<http://wpc.perfumerflavorist.com>

## Cosmobeaute Asia

18-21 July 2016. Kuala Lumpur, Malaysia

[www.beauty-events.com/Cosmobeaute-Asia](http://www.beauty-events.com/Cosmobeaute-Asia)

## BiobasedWorld Tradeshow

15-16 February 2017. Cologne, Germany

[www.boiobasedworld.de/en/home.html](http://www.boiobasedworld.de/en/home.html)