

On Site: CSA Roundtable

New and notable ingredients for flavor chemists.

The Chemical Sources Association (CSA) and Society of Flavor Chemists (SFC) once again co-located their meetings as part of the annual CSA roundtable event, which took place recently in Newark, New Jersey. During the event, the SFC appointed Hedy Kulka (IFF) as its new president.

A sampling of some new and interesting materials shown at the CSA roundtable is provided here.

Advanced Biotech presented **benzaldehyde glyceryl acetate** (FEMA# 2129; CAS# 1319-88-6), which had a smell and taste that was faintly musty, mildly red fruity, with nuances of cherry pit and almond appropriate for bubble gum, coconut, fruit and butter flavors. **Vanillin acetate** (FEMA# 3108; CAS# 881-68-5), with a 99% purity, had a clove note on top, followed by a creamy, sweet, powdery, balsamic vanilla profile appropriate for almond, balsam, bread and caramel applications at levels of 1–500 ppm. **Methyl isobutyrate** (FEMA# 2694; CAS# 547-63-7) possessed a juicy, sweet, floral, apple, pineapple and ethereal character appropriate for apricot, pear, peach, pineapple and wine flavors at levels of 10–200 ppm. **Phenethyl isobutyrate** (FEMA# 2862; CAS# 103-48-0) had a red fruit, rosy, gardenia, floral, tea, chocolate honey, aldehydic character appropriate for papaya, coconut, ylang-ylang and floral flavors at levels of 1–200 ppm. **3-Phenylpropyl acetate** (FEMA# 2890; CAS# 122-72-5) had a cassia, cinnamon, floral, Cinnabonlike, honey, spicy, haylike, balsamic, powdery character appropriate for use in grape, cranberry, spice and cassia flavors at levels of 1–100 ppm. **Isoamyl 2-methylbutyrate** (FEMA# 3505; CAS# 27625-35-0) imparted an apple, berry, sweet, pineapple, winey, cognac, chardonnay and citrus character appropriate for banana, citrus, melon and raspberry flavors at levels of 1–100 ppm. **2,6-Dimethyl-5-heptenal** (synonym: melon aldehyde; FEMA# 2389; CAS# 106-72-9; E.U. natural) had a cucumber, watermelon rind, green, cilantro, guava and parsley character appropriate for use in red apple, cilantro, mango, cucumber and tropical flavors at levels of 10–100 ppm. **2,5-Dimethyl-3(2H)-furanone** (synonym: mango furanone; FEMA# 4101; CAS# 14400-67-0) had a butterscotch, nutty, bread, caramel, confectionery, sweet character appropriate for use in bread, coffee, caramel, mango and strawberry flavors at levels of 1–25 ppm. **Pyruvic acid** (FEMA# 2970; CAS# 127-17-3), a natural fermentation product, acts as a synergist to lift other acids. It had a sharp, cheese, sour cream character appropriate for dairy,

savory, vegetable, nut, coffee and cheese flavors at levels of 1–100 ppm. **2,6-Dimethoxyphenol** (FEMA# 3137; CAS# 91-10-0), a natural smoke flavor under E.U. regulations, had a smoke, cured bacon, beany vanilla character appropriate for bacon, coffee, licorice and nut applications at levels of 10–100 ppm. **Styralyl acetate** (FEMA# 2684; CAS# 93-92-5) had a rhubarb vegetable, grapefruit and hazelnut character appropriate for pear, plum, strawberry, tea and sweet pea flavors at levels of 10–100 ppm. **Ethanethioic acid, S-(2-methyl-3-furanyl) ester** (FEMA# 3973; CAS# 55764) had a beef, roast beef, grilled, smoked, BBQ character appropriate for beef, chicken, meat and coffee flavors at levels of 0.01–10.00 ppm. **3-(Methylthio)butanal** (FEMA# 3374; CAS# 16630-52-7) had a potato, seedy tomato,



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cabbage, durian and brussels sprout character appropriate for use in potato chip, vegetable, tomato and tropical profiles at levels of 1–25 ppm.

Alfrebro displayed **natural trans-2-octenol** 10% in ethanol (FEMA# 3887; CAS# 18409-17-1) was waxy, citrusy and tatty. **Natural trans-2-nonanol** 10% in ethanol (FEMA# 3379; CAS# 31502-14-4) had waxy, green, violet, melon, vegetable, cucumber, savory and chicken notes. **Natural trans-2-Decenol** (FEMA# 4304; CAS# 18049-18-2) had waxy, fresh, citrus and rose nuances. **Natural trans-2-Nonenyl acetate** 10% in ethanol (FEMA# 4552; CAS# 30418-89-4) was high impact with sweet, fruity, waxy and citrus nuances. **3-Nonen-2-one** 10% in ethanol (FEMA# 3955; CAS# 14309-57-0) had nuances of citrus, melon, coconut and sweetness that work well in yellow fruits. A sample of a non-production batch of **phenethylamine** (FEMA# 3220) was shown. It had rosy and fishy notes. A maple leaf concentrate was savory.

Allylix displayed its artificial **nootkatone 98% 103** (FEMA# 3166; CAS# 4674-50-4), which had a fresh, woody, citrus note. It also displayed **valencene** (FEMA# 3443; CAS# 4630-07-3), an E.U. natural product that is characteristic of grapefruit, orange and other citrus. The company is currently working to launch more sesquiterpenes.

Apple Flavor & Fragrance Group Ltd. Co. displayed **passion fruit essence concentrate**, which was sweet, fruity, sulfurous, passion fruitlike, tropical and intense, appropriate for use in beverage, bakery, confectionery and dairy applications at levels of 0.05–0.20%. **Folded black tea essence** had a smooth, black tea, sweet, earthy and masculine character appropriate for use in beverages at levels of 0.05–0.20%. **Folded jasmine tea essence** had a sweet, delicate, tea, jasmine and flowery character appropriate for use in water-soluble beverage flavors at levels of 0.03–0.20%. **Sulfurol** (FEMA# 3204; CAS# 137-00-8) had a meaty, brothy, yeasty, bready, oily, sulfurous, roasted, metallic and nutty character appropriate for use in bacon, bread, savory, cheese, chocolate, coffee and meat flavor profiles. **WS-3** (FEMA# 3455; CAS# 38711-79-0) had a cooling, minty and medicinal impact appropriate for beverage, mint, oral care and chewing gum applications. **WS-23** (FEMA# 3804; CAS# 51115-67-4) had a highly cooling effect and fresh and aromatic character appropriate for mint, oral care, chewing gum and tobacco applications. **VanillaFF** (natural vanillin ex ferulic acid) was sweet and creamy, appropriate for use in vanilla, brown, caramel, cocoa, dairy, fruit and alcoholic flavors.

Artiste displayed **natural pineapple aroma**, appropriate for yogurt, ice cream and beverage applications; **fresh lemon**

FTNF, a fresh, sweet, citral, strong and peely flavor for baked good, fruit filling and beverage applications; **ripe strawberry FTNF**, a ripe, creamy material appropriate for beverages and dairy; **cascade peppermint oil**, a minty, herbal material appropriate for confectionery, beverage and dairy applications; and **peppermint leaf oil**, a proprietary product appropriate for peppermint flavors.

Axxence displayed a range of materials, including **natural pyrazine mixture No. 18** (FEMA# 3244), which was roasted nutty and very reminiscent of chocolate at some concentrations; **natural ethyl 3-(methylthio)propionate** (FEMA# 3343), which was fruity and appropriate for pineapple character; **natural methionyl butyrate** (FEMA# 4160), which was tropical, cheesy and potatolike; **natural 4-mercapto-4-methyl-2-pentanol**



Norma Schwarz (Flavor Dynamics), at left, receives her 25-year pin from new SFC president Hedy Kulka (IFF).

(FEMA# 4158), which was had a floral, citrus, potent, catty character; and **natural 2-methyl-4-propyl-1,3-oxathiane**, which was high-impact and had a passion fruit and tropical character.

Bedoukian Research presented **ethyl cis-4-octenoate** (FEMA# 3344; CAS# 34495-71-1), which had a grape, strawberry, pineapple, pear and apple character appropriate for pear, pineapple and other fruit flavors at levels of 0.5–5.0 ppm. **Apritone**, a blended top note product, enhances apricot, peach and Bing cherry flavors. Reminiscent of cooked or dried fruit, apricot, peach and jasmine, it can be applied at levels of 0.5–5.0 ppm. **2-Ethylfenchol** possessed a strong, earthy, root vegetable and musty aroma appropriate for root vegetable, lemon and lime flavors at levels of 3–10 ppb.

Berjé offered **terpeneless lemon oil** in mini lemon cupcakes, **black currant absolute** sweetened with **luo han guo extract**, **vanilla absolute** in cookies, **cocoa extract** in a dark roast shot, **coffee Arabica CO₂** in a flourless “chocolate bite” and pink pepper in a meringue drop.

Citrus & Allied presented a range of products, including **blood orange 2-fold and 5-fold**; **Meyer lemon standard and 5-fold**; **kaffir lime oil**; **natural 1-octen-3-ol**; and **germacrene D**.

DeLong Chemicals America presented **nature identical (Z)-non-6-enal** (CAS# 2277-19-2), which had a green, cucumber, melon character appropriate for vegetable flavorings at a level of <10 ppm. **(2E,6Z)-Nona-2,6-dien-1-ol** (CAS# 28069-72-9) had a green, vegetative and fresh character appropriate for vegetable flavors at a level of <10 ppm. **Nature identical (E,Z)-2,6-nonadienal** (CAS# 557-48-2) had a green, cucumber, fresh, fatty character appropriate for meat and seasoning applications at a level of <10 ppm. **Nature identical 2-pentyl pyridine, 2-amyl pyridine** (CAS# 2294-76-0) had a fresh, herb, mushroom, vegetal and pepper character appropriate for green pepper, fish, meat, mushroom, meat soup, sesame and other profiles at levels of 5–10 ppm. **Nature-identical 5-ethyl-3-hydroxy-4-methyl-2(5H)-furanone** (maple furanone; CAS# 698-10-2) had a tropical fruit, maple, butterscotch and caramel character appropriate for caramel, berry and sweet applications

at levels of 0.5–1.0 ppm. **Nature identical 1,6-dimethylthio-phenol** (CAS# 118-72-9) had a roasted meat, smoky character appropriate for meat flavorings at a level of <10 ppm. **Nature identical 5,7-dihydro-2-methylthieno[3,4-d]pyrimidine** (CAS# 36267-71-7) had a popcorn, sweet, fried almond character appropriate for use in baked goods, dairy products and seasonings at levels of 0.5–2.0 ppm.

Firmenich displayed **apple Naturome**, an FTNF product that had a green and fruity character and slight cooked nuance appropriate for use in alcoholic and non-alcoholic beverages, juices, flavored waters, sports drinks, carbonated soft drinks and dairy products. **Raspberry Naturome** was an FTNF product with a ripe, seedy and slightly woody character appropriate for use in spirits, juices, flavored waters, sport drinks, carbonated soft drinks and dairy products. **Honey Naturome**, an FTNS product, had a honey, animalic character appropriate for fruity and brown notes, soft drinks, alcoholic beverages, chilled dairy products, dairy desserts, cookies and confectionery. **Brown sugar Naturome**, an FTNS material, had a typical brown sugar profile with a burnt sugar facet appropriate for alcoholic and non-alcoholic beverages, dairy products, desserts and ice cream. **Malt Naturome**, an FTNS product, was caramellic, fermented, savory, alcoholic, brown and animalic, appropriate for beer, dairy and ice cream applications. **Peated grain Naturome**, an FTNS product, had a smoky, brandy, savory, malty and brown character appropriate for maple syrup and savory applications.



Gerry Kraus, thanking the SFC for his 50-year award.

Firmenich/Vigon displayed **coffee SFE**; **coffee water-soluble 3X SFE**; **coffee SFE espresso water soluble**; **coffee Arabica extract**; and **coffee Santos SFE**.

Florida Chemical Co. Inc., which has been acquired by **Flotek**, exhibited **linalool fraction 95%**, which was floral and perfumey, with a good mouthfeel. The **nonanal fraction 90%** had a fatty, soapy character appropriate for balancing or rounding-out profiles. **Decanal fraction 75%** was similar

to, but distinct from, nonanal. **Valencene fraction 75%** was woody, appropriate as a background element. **Nootkatone fraction 50%** was grapefruitlike and lingered on the palate.

Frutarom presented **cocoa nibs concentrate**, which had strong chocolaty notes that imparted a slight roasted quality. An **organic-compliant coffee extract** was smoky, phenolic and roasted. **Cocoa concentrate 11X** was dark, intense and meaty, appropriate for savory applications. A **chestnut leaf extract** was green, leafy, woody and haylike.

Horner International presented a number of interesting products, including **clear cocoa distillate**, **cocoa extract**, **yerba mate extract** and **gentian extract**.

Lionel Hitchen presented a range of natural materials, including **Mexican jalapeno and chipotle extracts**, **basil**

(*linalool-type*) **oleoresin**, **savory oleoresin**, **cinnamon oleoresin**, **grapefruit oil sesquiterpeneless** and **lime oil Tahiti 5-fold**.

Pyrazine Specialties/CTC Organics presented natural **5-hydroxy-2-decenoic acid δ -lactone** (FEMA# 3744), which had a sweet, creamy, coconut, peach and herbal character appropriate for confectionery, chewing gum, dairy products, non-alcoholic beverages, baked goods, vegetables and other profiles at levels of 0.2–4.0 ppm. **Linalool oxide** (FEMA# 3746) had a sweet, powerful, woody, floral, earthy, terpy, minty and green character.

SAFC, which is reportedly adding about 50 natural materials to the palate each year, presented several new materials, including **levulinic acid 99% FG**, which was caramel, sweet and maple in character and recommended for use in applications <1,000 ppm. **D-Dihydrocarvone**, mixture of isomers, 97% FG, was herbaceous, spearmint, woody and cooling in character, appropriate for chewing gum and oral care applications at levels of <16 ppm. **Anisyl butyrate >96%** was plum, sweet, floral and vanilla in character, appropriate for anise top notes and confectionery and mouthwash applications at levels of <18 ppm. **2,3-Hexanedione 98% FG** was buttery, creamy, fruity, caramel and butterscotch in character, appropriate for butter and toasted coconut notes. **Allyl heptanoate 98% FG** was sweet, pineapple and ethereal in character. **cis-1-(1-Ethoxyethoxy)-3-hexene, mixture of isomers 97%**, was green herbaceous and vegetable in character, appropriate for application in fruit flavors, including apple, pear and white grape.

SAFISIS offered natural **γ -decalactone** (FEMA# 2360) had a fresh, oily, waxy, coconut, sweet creamy, peach and fatty character. **Natural γ -octalactone** (FEMA# 2796) had a lactonic, creamy, coconut, sweet, waxy coumarin, fruity and tonka character. **Geranyl butyrate** (FEMA# 2512) had a fruity, green rose, waxy, green, tropical character. **Hexanal** (FEMA# 2557) had a fatty, green, woody, apple, grassy and aldehydic character. Appropriate for application in fruit drinks and alcoholic beverages, **ethyl 2-methyl butyrate** (FEMA# 2443) had a fruity, estery, fresh, berry, tropical and rumlike character. **Natural vanillin ex ferulic**, was sweet, creamy, vanillalike, almondlike and caramel in character.

Symrise presented **trans-2,2-phenylbutenal**, **4,2-thiopen-tanone**, **natural milk- and meat-type sulfurol replacers**, **vinylguaiacol** and **triisobutyldihydrothiazine**.

Teawolf displayed a range of natural materials, including **green tea distillate**, which was fresh and not barnyardlike, and possessed caffeine; **black tea distillate** that had been processed to become a near complete flavor; **rooibos distillate**; **cocoa water white distillate** appropriate for alcoholic beverages; **cocoa distillate dark**; **2-fold and 10-fold vanilla Bourbon extract**; **concentrated green coffee bean extract**; and **tamarind extract** with brandy and bourbon nuances appropriate for savory and beverage applications.

Treatt presented **Citreatt Lime Plus**, from key lime, had a powerful distilled lime flavor and enhanced solubility in alcohol. The process used to produce the product concentrates top notes. **Coffee Treattarome Full Roast 9780** had a warm roasted coffee character; the caffeine-free material is appropriate for use at levels of about 5 ppm. **Coffee Treattarome Mellow 9781**, produced from beans roasted for 14 minutes, was rich, aromatic, ashy, with chocolate notes appropriate for hot or cold beverages, dairy and non-dairy beverages, and sauces and desserts. **Hop oil Hersbrucker**, produced via CO₂ extraction and high-vacuum distillation, was fragrant, floral, fairly sweet and slightly minty. **4-Hydroxy-5-methyl-3(2H)-furanone** had a sweet, burnt, roasted, caramel, chicory and maltol character appropriate for coffee, meat, fruit and other flavors at levels up to 35 ppm. **Sodium 2-(4-methoxyphenoxy)propionate** had very little odor, but offered sweetness modification for confectionery, dairy, bakery, snack food and other applications at levels of 50–150 ppm.

Virginia Dare presented **oolong tea concentrate 2,000X**; **cocoa WONF 5,000X**, a bitterness agent; **green tea concentrate**; **rooibos concentrate**; and **organic 20X vanilla**.

Wen International displayed **natural melonal**, which was fresh, green-melonlike and cucumber; natural **δ -undecalactone**, which was creamy, fatty, coconut, fruity, peach and waxy; **natural butyl butyryl lactate**, which was creamy, buttery buttermilk, dairy and cheeselike; and **natural isoamyl isobutyrate**, which was fruity, grape, apricot and pineapple-like.

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