

The Sweet Smell of Standards^a

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As the recent history of the ISO/TC 54 committee shows, the development of the work program was interrupted for some years owing to problems with the former secretariat. After the replacement of this secretariat in 1993, a very big effort has been made to boost and relaunch the work program.

The international meeting held in Madrid in 1994 was the first organized by AENOR, the ISO member body for Spain, after its election as the international ISO TC-54 Secretariat, supported by STANPA. The first step was to reorganize the work and adapt it to the current world situation. A priority list was devised for the nearly 100 work items included in the ISO/TC 54 work program, which were at different stages of development. At this meeting, I had the honor of being elected TC chairman. The following international meeting, held in Paris in 1996, was as successful as that in Madrid, and, at long last, the function of the organization was finally settled and some important points regarding essential-oil trade and future trends were fully discussed. ISO/TC 54 held its next international meeting in New York at the beginning of December 1998, where committee members discussed some important standards regarding quality, legislation, analysis, etc.

Breakdown

Until recently, ISO/TC 54 work on standardization could be classified into the following areas:

- Developing specific monographs for quality standardization on every essential oil. Examples of the latest published monographs are: ISO 3141:1997, oil of clove leaves; ISO 3216:1997, oil of cassia, Chinese type; or ISO 3528:1997, Oil of Mandarin, Italian type.
- Standardization of analytical methods to control quality, ISO 7609:1985, essential oils, analysis by gas chromatography on capillary columns; or ISO 1242:1973, essential oils, determination of the acid value.
- Requirements for transport, packaging and marking; ISO/DIS 210, general rules for packaging, conditioning

and storage; ISO/DIS 211, general rules for labeling and marking of containers.

- Nomenclature, botanical names, ISO 4720, nomenclature, etc.

However, since 1947 the economic and industrial environment in the essential-oil field has changed in a number of important ways: the globalization of markets, the dropping of some trade barriers, the expansion of big companies, and the specialization of small ones, have painted a somewhat different picture of world trade over the last few years. At the same time, environmental and quality requirements continued to grow, conditioning the production and commercialization of essential oils.

Looking to the future, we have to take into account several new factors that could change the production or the orientation of the new developing standards. As previously mentioned, for reasons of economics, the production of essential oils is shifting toward less-developed countries. For example, turpentine and eucalyptus oils are now produced mainly by China. The production of spearmint oil is moving to India. Quality control and purchasing, however, are chiefly done in developed countries. International standards are usually created by those countries that lack production data. This is because those countries with economic difficulties are not often represented at the international meetings where these standards are discussed. In such cases, a fluid exchange of information and promotion of international meetings is extremely important to reach international consensus on standards. In the near future, new information and computer technologies will be extremely useful for this purpose, avoiding unnecessary costs and facilitating a continuous exchange of information.

The use of international standards by companies has not gone as far as it should because much of the essential-oil trade is made up of specialties; essential oils partially modified to achieve certain customer demands such as a low price or consistent quality, independent of variations in harvests. The qualities demanded aren't necessarily inherent in the original essential oils and those that do not implement international standards. This troubling point has difficult solutions that have to be discussed in detail. Owing to environmental requirements, new standards have to be prepared on areas such as residual solvents, pesticides

^aSee sidebars for summary of organizational history and activities. These have since been corrected and updated, to be published in *Perfumer & Flavorist*, July/August, 1999.

^bThe International Standards Organization created ISO/TC-54, Essential Oils, in 1947 as one of the first ISO Technical Committees. This work has been recognized for many years, with the publication of an excellent set of standards.

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History of Standards

ISO	Year	Standard	ISO	Year	Standard
212	1973	ESSENTIAL OILS – SAMPLING	3756	1976	OIL OF CUBEB
356	1996	ESSENTIAL OILS - PREPARATION OF TEST SAMPLES	3761	1997	OIL OF ROSEWOOD, BRAZILIAN TYPE [ANIBA ROSAEODORA DUCKE VAR. AMAZONICA DUCKE OR ANIBA PARVIFLORA (MEISSNER) MEZ]
590	1981	OIL OF BRAZILIAN SASSAFRAS	3793	1976	ESSENTIAL OILS - ESTIMATION OF PRIMARY AND SECONDARY FREE ALCOHOLS CONTENT BY ACETYLATION IN PYRIDINE
1041	1973	ESSENTIAL OILS - DETERMINATION OF FREEZING POINT	3794	1976	ESSENTIAL OILS (CONTAINING TERTIARY ALCOHOLS) - ESTIMATION OF FREE ALCOHOLS CONTENT BY DETERMINATION OF ESTER VALUE AFTER ACETYLATION
1202	1981	ESSENTIAL OILS - DETERMINATION OF 1,8-CINEOLE CONTENT	4096	1978	ESSENTIAL OILS (CONTAINING TERTIARY ALCOHOLS) - EVALUATION OF FREE ALCOHOLS CONTENT BY DETERMINATION OF ESTER VALUE AFTER COLD FORMYLATION
1241	1996	ESSENTIAL OILS - DETERMINATION OF ESTER VALUES, BEFORE AND AFTER ACETYLATION, AND EVALUATION OF THE CONTENTS OF FREE AND TOTAL ALCOHOLS	4715	1978	ESSENTIAL OILS - QUANTITATIVE EVALUATION OF RESIDUE ON EVAPORATION
1271	1983	ESSENTIAL OILS - DETERMINATION OF CARBONYL VALUE - FREE HYDROXYLAMINE METHOD	4716	1987	OIL OF VETIVER [VETIVERIA ZIZANIOIDES (LINNAEUS) NASH]
1279	1996	ESSENTIAL OILS - DETERMINATION OF CARBONYL VALUE - POTENTIOMETRIC METHODS USING HYDROXYLAMMONIUM CHLORIDE	4720	1992	ESSENTIAL OILS – NOMENCLATURE
3043	1975	OIL OF PIMENTO BERRY	4725	1986	OIL OF CEDARWOOD, TEXAS (JUNIPERUS MEXICANA SCHIEDE)
3044	1997	OIL OF EUCALYPTUS CITRIODORA HOOK.	4727	1988	OIL OF PALMAROSA [CYMBOPOGON MARTINII (ROXBURGH) W. WATSON VAR. MOTIA]
3045	1974	OIL OF BAY	4728	1992	OIL OF WILD THYME (THYMUS MASTICHINA, LINNAEUS)
3061	1979	OIL OF BLACK PEPPER	4729	1984	OIL OF PIMENTO LEAF [PIMENTA DIOICA (LINNAEUS) MERRILL]
3062	1974	OIL OF SANDALWOOD (EUCARYA SPICATA), AUSTRALIA	4730	1996	OIL OF MELALEUCA, TERPINEN-4-OL TYPE (TEA TREE OIL)
3063	1983	OIL OF YLANG-YLANG [CANANGA ODORATA (LAMARK) J.D. HOOKER AND THOMSON]	4731	1978	OIL OF GERANIUM (PELARGONIUM GRAVEOLENS L'HÉRITIER EX AITON, PELARGONIUM ROSEUM WILDENOW)
3065	1974	OIL OF AUSTRALIAN EUCALYPTUS, 80 TO 85 % CINEOLE CONTENT	4733	1981	OIL OF CARDAMOM
3140	1990	OIL OF SWEET ORANGE [CITRUS SINENSIS (LINNAEUS) OBSBECK], OBTAINED BY MECHANICAL TREATMENT	4734	1981	OIL OF MACE
3141	1997	OIL OF CLOVE LEAVES [SYZYGIUM AROMATICUM (L.) MERR. ET PERRY, SYN. EUGENIA CARYOPHYLLUS (SPRENGEL) BULLOCK ET S. HARRISON]	4735	1981	OILS OF CITRUS - DETERMINATION OF CD VALUE BY ULTRAVIOLET SPECTROPHOTOMETRIC ANALYSIS
3142	1997	OIL OF CLOVE BUDS [SYZYGIUM AROMATICUM (L.) MERR. ET PERRY, SYN. EUGENIA CARYOPHYLLUS (SPRENGEL) BULLOCK ET S. HARRISON]	5991	1979	ESSENTIAL OILS - DETERMINATION OF RESIDUE FROM DISTILLATION UNDER REDUCED PRESSURE
3143	1997	OIL OF CLOVE STEMS [SYZYGIUM AROMATICUM (L.) MERR. ET PERRY, SYN. EUGENIA CARYOPHYLLUS (SPRENGEL) BULLOCK ET S. HARRISON]	7353	1985	OIL OF ROSEWOOD - DETERMINATION OF ALPHA-TERPINEOL CONTENT - GAS CHROMATOGRAPHIC METHOD ON PACKED COLUMNS
3216	1997	OIL OF CASSIA, CHINESE TYPE (CINNAMOMUM AROMATICUM NEES, SYN. CINNAMOMUM CASSIA NEES EX BLUME)	7355	1985	OILS OF SASSAFRAS AND NUTMEG - DETERMINATION OF SAFROLE AND CIS - AND TRANS-ISOSAFROLE CONTENT - GAS CHROMATOGRAPHIC METHOD ON PACKED COLUMNS
3217	1974	OIL OF LEMONGRASS (CYMBOPOGON CITRATUS)	7356	1985	OILS OF THUJONE-CONTAINING ARTEMISA AND OIL OF SAGE (SALVIA OFFICINALIS LINNAEUS) - DETERMINATION OF ALPHA- AND BETA-THUJONE CONTENT - GAS CHROMATOGRAPHIC METHOD ON PACKED COLUMNS
3218	1976	ESSENTIAL OILS - PRINCIPLES OF NOMENCLATURE	7357	1985	OIL OF CALAMUS - DETERMINATION OF CIS-BETA-ASARONE CONTENT - GAS CHROMATOGRAPHIC METHOD ON PACKED COLUMNS
3516	1997	OIL OF CORIANDER FRUITS (CORIANDRUM SATIVUM L.)	7359	1985	ESSENTIAL OILS - ANALYSIS BY GAS CHROMATOGRAPHY ON PACKED COLUMNS - GENERAL METHOD
3519	1997	OIL OF LIME [CITRUS AURANTIFOLIA (CHRISTM.) SWINGLE], OBTAINED BY DISTILLATION			
3525	1979	OIL OF AMYRIS			
3526	1991	OIL OF SAGE (SALVIA LAVANDULIFOLIA)			
3528	1997	OIL OF MANDARIN, ITALIAN TYPE (CITRUS RETICULATA BLANCO)			
3714	1980	OIL OF PENNYROYAL			

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History of Standards (continued)

ISO	Year	Standard	ISO	Year	Standard
7609	1985	ESSENTIAL OILS - ANALYSIS BY GAS CHROMATOGRAPHY ON CAPILLARY COLUMNS - GENERAL METHOD	8900	1987	OIL OF BERGAMOT PETITGRAIN [CITRUS AURANTIUM (LINNAEUS) SSP. BERGAMIA (WIGHT AND ARNOTT) ENGLER]
7610	1985	OIL OF SANDALWOOD - DETERMINATION OF SANTALOLS CONTENT (IN THE FORM OF THEIR TRIMETHYLSILYL DERIVATIVE) - GAS CHROMATOGRAPHIC METHOD ON CAPILLARY COLUMNS	9235	1997	AROMATIC NATURAL RAW MATERIALS - VOCABULARY
7611	1985	OILS OF LEMON AND PETITGRAIN CITRONNIER, AND OIL OF LIME OBTAINED BY A MECHANICAL PROCESS-DETERMINATION OF CITRAL (NERAL+GERANIAL) CONTENT-GAS CHROMATOGRAPHIC METHOD ON CAPILLARY COLUMNS	9841	1991	OIL OF HYSSOP (HYSSOPUS OFFICINALIS LINNAEUS)
7660	1983	ESSENTIAL OILS. DETERMINATION OF ESTER VALUE OF OILS CONTAINING DEFFICULT-TO-SAPONIFY ESTERS	9843	1991	OIL OF CEDARWOOD (CUPRESSUS FUNEBRIS ENDLICHER)
8432	1987	ESSENTIAL OILS - ANALYSIS BY HIGH PERFORMANCE LIQUID CHROMATOGRAPHY - GENERAL METHOD	9844	1991	OIL OF BITTER ORANGE (CITRUS AURANTIUM LINNAEUS SSP. AURANTIUM)
8896	1987	OIL OF CARAWAY (CARUM CARVI LINNAEUS)	9909	1997	OIL OF DALMATIAN SAGE (SALVIA OFFICINALIS L.)
8897	1991	OIL OF JUNIPER BERRY (JUNIPERUS COMMUNIS LINNAEUS)	9910	1991	OIL OF SWEET ORANGE - DETERMINATION OF THE TOTAL CAROTENOIDS CONTENT
8899	1991	OIL OF LEMON PETITGRAIN [CITRUS LIMON (LINNAEUS) N.L. BURMAN]	10115	1997	OIL OF TARRAGON (ARTEMISIA DRACUNCULUS L.), FRENCH TYPE
			10624	1998	OIL OF ELEMI (CANARIUM LUZONICUM MIQ.)
			11019	1998	OIL OF ROOTS OF LOVAGE (LEVISTICUM OFFICINALE KOCH)
			11025	1998	OIL OF CASSIA, CHINESE TYPE-DETERMINATION OF TRANS-CINNAMALDEHYDE CONTENT-GAS-CHROMATOGRAPHIC METHOD ON CAPILLARY COLUMNS

Working Program

ISO	Year	Standard	Status
210.2	1979	ESSENTIAL OILS - GENERAL RULES FOR PACKAGING, CONDITIONING AND STORAGE (REVISION OF ISO/R 210:1961)	DTR
211.2	1979	ESSENTIAL OILS - GENERAL RULES FOR LABELLING AND MARKING OF CONTAINERS (REVISION OF ISO/R 211:1961)	DTR
279	1994	ESSENTIAL OILS - DETERMINATION OF RELATIVE DENSITY AT 20 DEGREES C (REFERENCE METHOD) (REVISION OF ISO 279:1981)	DIS
280	1994	ESSENTIAL OILS - DETERMINATION OF REFRACTIVE INDEX (REVISION OF ISO 280:1976)	DIS
592	1994	ESSENTIAL OILS - DETERMINATION OF OPTICAL ROTATION (REVISION OF ISO 592:1981)	DIS
709	1980	ESSENTIAL OILS. DETERMINATION OF ESTER VALUE (REVISION OF ISO 709:1980)	CD
770	1986	ESSENTIAL OILS. CRUDE OR RECTIFIED OILS OF EUCALYPTUS GLOBULUS (EUCALYPTUS GLOBULUS LABILL.) (REVISION OF ISO 770:1980)	CD
855	1988	OIL OF LEMON [CITRUS LIMON (L.) BURM. F.], OBTAINED BY EXPRESSION (REVISION OF ISO 855:1981)	WD
856	1988	OIL OF PEPPERMINT, FRANCE, ITALY, UNITED KINGDOM, USA, INDIA, BULGARIA AND CHINA (REVISION OF ISO 856:1981)	WD
875	1994	ESSENTIAL OILS - EVALUATION OF MISCIBILITY IN ETHANOL (REVISION OF ISO 875:1981)	DIS
1242	1994	ESSENTIAL OILS - DETERMINATION OF THE ACID VALUE (REVISION OF ISO 1242:1973)	DIS
1272	1994	ESSENTIAL OILS - DETERMINATION OF PHENOLS CONTENT (REVISION OF ISO 1272:1973)	DIS
1342	1994	ESSENTIAL OILS. OIL OF ROSEMARY (ROSMARINUS OFFICINALIS LINNAEUS) (REVISION OF ISO 1342:1988)	CD
3033	1994	OIL OF SPEARMINT (MENTHA SPICATA LINNAEUS) (REVISION OF ISO 3033:1988)	NP
3053	1988	OIL OF GRAPEFRUIT (OBTAINED BY EXPRESSION) (REVISION OF ISO 3053:1975)	WD
3054	1987	OIL OF LAVANDIN ABRIALIS [LAVANDULA ANGUSTIFOLIA P. MILLER X LAVANDULA LATIFOLIA (LINNAEUS F.) MEDIKUS], FRANCE (REVISION OF ISO 3054:1987)	WD
3064	1989	OIL OF PETITGRAIN, PARAGUAY (CITRUS AURANTIUM L. SUBSP. AURANTIUM) (REVISION OF ISO 3064:1977)	DIS
3214	1986	OIL OF LITSEA CUBEBA (REVISION OF ISO 3214:1974)	DIS
3215	1988	ESSENTIAL OILS. OIL OF NUTMEG, INDONESIAN TYPE (MYSTIRICA FRAGRANS HOUTTUYN) (REVISION OF ISO 3215:1974)	DIS
3475	1988	OIL OF ANISEED (ANYSUM PIMPINELLA) (REVISION OF ISO 3475:1975)	WD
3515	1994	ESSENTIAL OILS. OIL OF FRENCH LAVENDER (LAVANDULA AUGUSTIFOLIA P. MILLER) (REVISION OF ISO 3515:1987)	CD
3517	1988	OIL OF NEROLI (CITRUS AURANTIUM L. SUBSP. AURANTIUM SYN. CITRUS AURANTIUM L. SUBSP. AMARA VAR. PUMILIA) (REVISION OF ISO 3517:1975)	CD
3518	1989	OIL OF SANDALWOOD (SANTALUM ALBUM, LINNAEUS) (REVISION OF ISO 3518:1979)	WD

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Working Program (continued)

ISO	Year	Standard	Status
3520	1986	OIL OF BERGAMOT [CITRUS AURANTIUM L. SUBSP. BERGAMIA (WIGHT AND ARNOTT) ENGLER], ITALIAN TYPE (REVISION OF ISO 3520:1980)	FDIS
3523	1988	OIL OF CANANGA (REVISION OF ISO 3523:1976)	WD
3524	1989	OIL OF CINNAMON LEAF (REVISION OF ISO 3524:1977)	WD
3527	1988	OIL OF PARSLEY FRUIT (REVISION OF ISO 3527:1975)	WD
3757	1989	OIL OF PATCHOULI (REVISION OF ISO 3757:1978)	WD
3760	1989	OIL OF CELERY SEED (REVISION OF ISO 3760:1979)	WD
3809	1987	OIL OF LIME, MEXICO [CITRUS AURANTIIFOLIA (CHRISTMANN) SWINGLE] OBTAINED BY MECHANICAL MEANS (REVISION OF ISO 3809:1987)	WD
3848	1988	OIL OF CITRONELLA, JAVA TYPE (REVISION OF ISO 3848:1976)	WD
3849	1988	OIL OF CITRONELLA, SRI LANK TYPE (REVISION OF ISO 3849:1981)	WD
4718	1988	OIL OF LEMONGRASS (CYMBOPOGON FLEXUOSUS) (REVISION OF ISO 4718:1981)	WD
4719	1988	ESSENTIAL OILS. OIL OF SPIKE LAVENDER [LAVANDULA LATIFOLIA (LINNAEUS FILS) MEDIKUS] (REVISION OF ISO 4719:1983)	DIS
4724	1989	OIL OF CEDARWOOD, VIRGINIA (JUNIPERUS VIRGINIANA LINNAEUS) (REVISION OF ISO 4724:1984)	WD
4732	1988	RECTIFIED OIL OF EUCALYPTUS GLOBULUS LABILLARDIERE, PORTUGUESE TYPE (REVISION OF ISO 4732:1983)	WD
7354	1983	OILS OF CORIANDER, BERGAMOT, LAVANDER AND LAVANDIN. DETERMINATION OF LINALOL CONTENT, AND OF THE LINALYL ACETATE CONTENT OF OILS OF BERGAMOT, LAVANDER AND LAVANDIN. GAS CHROMATOGRAPHIC METHOD	DIS
7358	1980	OILS OF BERGAMOT, LEMON, CITRON AND LIME, FULL OR PARTIALLY REDUCED IN BERGAPTENE - DETERMINATION OF BERGAPTENE - CONTENT BY HIGH PERFORMANCE LIQUID CHROMATOGRAPHY	DIS
7659	1986	OIL OF EUCALYPTUS GLOBULUS - DETERMINATION OF 1,8-CINEOLE CONTENT - GAS CHROMATOGRAPHIC METHOD	DIS
7733	1981	OILS OF SPIKE LAVENDER, LAVENDER, LAVANDIN AND ROSEMARY - DETERMINATION OF 1,8-CINEOLE AND CAMPHOR CONTENTS - GAS CHROMATOGRAPHIC METHOD	DIS
7734.2	1981	OILS OF EUCALYPTUS CITRIODORA, GERANIUM AND CITRONELLA - DETERMINATION OF CITRONELLOL AND GERANIOL - GAS CHROMATOGRAPHIC METHOD ON PACKED OR CAPILLARY COLUMNS	DIS
8433.2	1982	OIL OF ROSE - DETERMINATION OF CITRONELLOL, NEROL AND GERANIOL CONTENT - GAS CHROMATOGRAPHIC METHOD ON CAPILLARY COLUMNS	DIS
8898.2	1984	OIL OF MANDARIN PETITGRAIN (CITRUS RETICULATA BLANCO)	DIS
8901	1987	OIL OF BITTER ORANGE PETITGRAIN (CITRUS AURANTIUM LINNAEUS SSP. AURANTIUM) (REVISION OF ISO 8901:1987)	WD
8902	1994	ESSENTIAL OILS. OIL OF LAVANDIN GROSSO [LAVANDULA ANGUSTIFOLIA MILLER X LAVANDULA LATIFOLIA (LINNAEUS F.) MEDIKUS] (REVISION OF ISO 8902:1987)	DIS
9301.2	1978	OIL OF CUMIN (CUMINUM CYMINUM LINNAEUS)	DIS
9776.2	1983	OIL OF MENTHA ARVENSIS, PARTIALLY DEMENTHOLIZED (MENTHA ARVENSIS LINNAEUS VAR. PIPERASCENS MALINVAUD, VAR. GLABRATA HOLMES)	DIS
9842	1996	OIL OF ROSE (ROSA DAMASCENA P. MILLER) (REVISION OF ISO 9842:1991)	NP
11016	1990	ESSENTIAL OILS. OIL OF STAR ANISE, TYPE CHINA (ILICIIUM VERUM J.D. HOOKER)	DIS
11020	1990	OIL OF TURPENTINE, IBERIAN TYPE (PINUS PINASTER SOL)	FDIS
11021	1990	ESSENTIAL OILS - DETERMINATION OF WATER CONTENT WITH KARL FISCHER REAGENT	DIS
11022.2	1990	ESSENTIAL OILS - DETERMINATION OF NICKEL, CHROMIUM, MANGANESE AND MOLYBDENUM BY ATOMIC ABSORPTION	CD
11023.2	1990	LIQUORICE EXTRACTS (GLYCYRRHIZA GLABRA L.) - DETERMINATION OF GLYCYRRHIZIC ACID CONTENT - METHOD USING HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY	DIS
11024-1	1990	ESSENTIAL OILS - GENERAL GUIDANCE ON THE PREPARATION AND UTILIZATION OF CHROMATOGRAPHIC PROFILES - PART 1: PREPARATION OF CHROMATOGRAPHIC PROFILES DURING STANDARDS WRITING	FDIS
11024-2	1990	ESSENTIAL OILS - GENERAL GUIDANCE ON THE PREPARATION AND UTILIZATION OF CHROMATOGRAPHIC PROFILES - PART 2: UTILIZATION OF CHROMATOGRAPHIC PROFILES OF SAMPLES OF ESSENTIAL OILS	FDIS
11029	1990	ESSENTIAL OILS OF MELALEUCA (SSP. MELALEUCA ALTERNIFOLIA, MELALEUCA LINARIIFOLIA) TYPE TERPINEN-1-OL-4. DETERMINATION OF 1,8 CINEOLE AND TERPINEN-1-OL-4 CONTENTS	CD
11030	1988	OIL OF CINNAMON, CEYLON TYPE - DETERMINATION OF EUGENOL CONTENT - GAS-CHROMATOGRAPHIC METHOD ON PACKED AND CAPILLARY COLUMNS	CD
11043	1990	OIL OF BASIL, METHYLCHAVICOL TYPE (OCIMUM BASILICUM LINNAEUS)	FDIS
14714	1994	ESSENTIAL OILS AND AROMATIC EXTRACTS - DETERMINATION OF RESIDUAL BENZENE CONTENT	FDIS
14715	1994	THYME OIL CONTAINING THYMOL [THYMUS ZYGIS (LOEFL.) L.], SPANISH TYPE	DIS
14716	1994	ESSENTIAL OILS. OIL OF GALBANUM (FERULA GALBANIFLUA BOISS. AND BUHSE)	DIS
14717	1994	OIL OF ORIGANUM [THYMBRA CAPITATA (L.)], SPANISH TYPE	DIS
15650	1997	OIL OF LAVENDER, BULGARIAN TYPE	NP

Terminology—FDIS—Final Draft International Standard; DIS—Draft International Standard; DTR—Draft Technical Report
CD—Committee Draft; WD—Working Draft; NP—New proposal

and environmental problems. To cite an actual problem, ISO/DIS 14714, determination of residual benzene content, is being developed at present. However, some important points like pesticide analysis require expensive and difficult checks. Discussion is open at ISO/TC 54 on the best way of dealing with this.

Analytical methodologies have improved and changed over the last few years. Old standards have been revised to adapt to new developments. ISO/DIS 11023, liquorice extracts, determination of glycyrrhizic acid content by HPLC, or ISO/DIS 11025, oil of cassia, Chinese type, determination of trans-cinnamaldehyde content by GC on capillary columns, are examples of new work being done in this direction.

Authenticity problems have now been resolved in certain cases, using chromatography with chiral columns, IRMS or NMR, and new essential-oil adulteration problems have been detected. Standards have to consider, in some cases, the determination of the origin of the essential oils. Standards also have to consider determination of components limited by legislation on areas regarding health. ISO/DIS 7358, oils of bergamot, lemon, citron and lime, determination of bergaptene content by HPLC or ISO 7357, oil of calamus, determination of cis- β -asarone content by GC, are good illustrations of this.

New essential-oil applications like aromatherapy are on

Technical Reports

11018	1997	ESSENTIAL OILS - GENERAL GUIDANCE ON THE DETERMINATION OF FLASHPOINT
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the market, so we must make new considerations with regard to these new applications. The use of pure essential oils where direct smelling of the product is involved can create new problems due to the possible presence of pesticides or products intended only for limited use. In other more traditional applications, because of the usual dilution employed, the use of these essential oils does not present any severe risk to users.

Finally, we can conclude with confidence that, with the above-mentioned points in mind, the demand for new international standards in the field of essential oils will continue to grow. We need such standards to facilitate world trade and to promote the quality of the products. Other major concerns include the health of the consumers, the safety of the products and industrial processes, and the application of advanced industrial technology by less-developed countries who will turn to the work of ISO/TC 54 to help the sector to develop.

References:

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