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pproach, they said, is to let consumers, manufacturers and retailers determine when consumer packages change to metric-only labeling.

To avoid negative customer reactions, manufacturers must consider the concerns of both retailers and consumers when considering the change to metric units. One spokesman stated while current consumer research indicates that US consumers do not prefer package net content statements overflowing with inch-pound unit information in multiple languages, industry has no incentive to conduct US consumer studies using metric-only unit net content declarations because they are not a legally permitted alternative. Companies must perform consumer research before changing to metric-only labeling. Industry does not expect an immediate change in domestic marketing practices even if the FPLA is changed. In fact, several manufacturers commented that if the FPLA were changed, they would most likely introduce metric-only labeling during new product introductions or when current products undergo a significant change in packaging or formulation, so that they could include information concerning the introduction of metric-only units in their in-store marketing and advertising campaigns.

A concerted effort must be made to break the perception that many people have of equating metric conversion with a forced change to standardized sizes (called “rational package sizes” and “hard conversion.”) While this approach was encouraged in the past in some areas, “hard conversion” is today recognized as one of the major stumbling blocks to voluntary conversion to the metric system. Most of the concerns over metric-only labeling can be traced to fears about hard conversion. The NCWM has eliminated its package size limitations and its uniform laws and regulations now permit the use of metric-only labeling. It is important to note that many countries around the world are currently considering the elimination of package size restrictions in their marketplaces (including the European Union). It appears that Unit Pricing at the retail store level, which has been available mostly on a voluntary basis from retailers for more than 30 years, may become the preferred method of providing consumers with the information they need to make value comparisons in marketplaces around the world.

While several representatives of food manufacturers expressed support for amending the FPLA to provide for permissible metric-only labeling, the objections voiced at the forum came primarily from trade associations or companies representing some food manufacturers and retailers. These concerns related primarily to problems that would be encountered if package size changes were imposed (i.e., hard conversion to metric sizes, which is not the intent of the proposed amendment). Some retailers also believe that consumers might not accept metric-only labels because they would not be able to use the metric units to make value comparisons. Their other objections relate to the expense of replacing shelf labels if changes in package net content declarations by manufacturers are not coordinated with the routine shelf-label changes that retailers make and to the possibility of consumer complaints if they do not see inch-pound units on packages.

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**The Forum on Permissible Metric-Only Labeling**

# I.Introduction

T

he United States adopted the metric system in 1866 and in 1988 Congress has declared it the preferred system of measurement for trade and commerce for this country. Transition to the metric system in the United States is to be accomplished on a voluntary basis with business and consumers deciding when it is most convenient and advantageous to bring about change in the marketplace. One goal of this initiative is to eliminate the conflict between the law that encourages the voluntary use of the metric system in trade and commerce and other laws or regulations that limit its use.

At the Forum on Permissible Metric Labeling held on November 7, 2002, several of America’s most prominent corporations, including Procter and Gamble and Binney and Smith Inc. (makers of Crayola® crayons), and a large paper manufacturer expressed a need for manufacturers to have the option of labeling their products with only metric units. One reason that manufacturers need the metric-only option is so they can simplify the packaging of their products intended for both domestic and foreign markets. Importers and retailers also have expressed support for the metric-only option.  Both importers and retailers report that acceptance and use of the metric system by their customers is increasing. Consumers are buying products with metric units and they are seeing it used more and more in the fields of health care and nutrition as well as in advertisements and news stories.

One of the biggest barriers to increased adoption and use of the metric system is concern about the cost and impact of requirements or interpretations that might require manufacturers to change the sizes of their packages. Under current laws manufacturers generally have the freedom to increase or decrease package sizes to meet the needs of their customers and provide competitive package sizes. To encourage the expanded use of the metric system it is essential to break the connection between metric conversion and the perception that it also entails the forced standardization of sizes (hard conversion). Almost every attempt to increase the use of the metric system has stalled when the “estimated” cost and widespread impact of “hard conversion” is faced. This is unfortunate because it has becomes a barrier to the use of the metric system.

It is essential to note that the International System of Units, while is generally known as the metric system, is about measuring objects not changing their size. Any object weighed or measured using the metric system has a “metric size” (e.g., this page is 21.5 cm by 28 cm) just as the same object measured using customary units has a size (8½ in. by 11 in). While the standardization of sizes provides some benefits because it simplifies things, it works with any system of measurement and should not be the deciding factor on whether or not metric units are used.

This does not imply that standardization efforts should be ignored because they, too, provide excellent benefits in most circumstances. But the decision to implement size changes must be made by those directly impacted by the effort after its costs and benefits have been carefully considered and properly balanced as part of a planned change coordinated with all parties who would be affected so that the cost is minimized. The proposed changes to the FPLA presented in this report do not impose restrictions on package sizes.

When it comes to consumer products, standardization must be done on a voluntary basis (e.g., bottled water, olive oil and soft-drinks all have some degree of standardization already and it has been done voluntarily) so that consumers have a say in what they can purchase and so that manufacturers and the distribution and retailing system are not burdened with costly changes in machinery, packaging and shipping containers and shelving, just some of the items impacted when the dimensions of a retail package are changed.

## Exports and International Competition

Global trade is already multi-lingual; within the foreseeable future manufacturers will be required to show only metric units on their package labels in many major marketplaces. To continue to be competitive, they must avoid the cost of maintaining separate inventories of metric-only packaging for use on exports and "dual-units" labeling for products sold in this country. While it is possible that permissible metric-only labeling option may increase exports of U.S. products, it is a certainty that without it our manufacturers will incur needless packaging and inventory costs.

Freeing up label space will also help by providing manufacturers with more space to present safe use directions and other information on products to comply with a wide range of emerging labeling requirements (e.g., organic or country of origin for many food products, and retained moisture notices on meat and poultry products).

## Importers and Retailers

U.S. manufacturers are not the only ones who would benefit from the option of metric-only labeling to ensure that their products can be sold marketplaces around the world. A similar dilemma is faced by importers and retailers who purchase manufactured goods from other countries and bring them into our marketplace where both metric and inch-pound units are required. At the forum, representatives of the Arts and Creative Materials Institute Inc. (ACMI), an international trade organization of more than 200 art and craft materials manufacturers, made a strong case for metric-only labeling by illustrating how the current labeling requirements for dual-units will impose an economic burden on their membership as more and more countries require metric-only labeling.

For example, if the FPLA is not amended before the EU Directive goes into effect, manufacturers in other countries that do not have multiple types of packaging (i.e., packaging with metric units for the EU and packaging with both metric and inch-pound units for the United States) will not be able to sell products in the United States with only metric units and conversely U.S. manufacturers who have packaging with dual-unit labels will not be able to sell those products in the EU.

The ACMI membership consists of small businesses that have product lines too limited to support multiple types of packaging. Different types of packaging impose additional storage demands for separate inventories needed to maintain separate packages for the various countries where they market their products. Without a change in the law, these and other manufacturers, both small and large, will be faced with higher production and inventory costs or they will have to stop selling their products in one or other of the markets. This would result in less competition and fewer product choices that would be detrimental consumers and business alike. On the other hand, requiring companies to maintain multiple types of packaging increases costs that will either be passed onto consumers or absorbed by the manufacturer. If costs have to be passed onto consumers, manufacturers could be placed at a competitive disadvantage because prices have to be raised to pay for maintaining multiple types of packaging. Importers will be able to provide products to consumers at lower cost if they have the option of metric-only labeling since they would be able to avoid having to pay suppliers to label products with “dual-units.”

Everyday, retailers selling packages of imported foods and other products with only metric units in the Pennsylvania, Maryland and Washington, D.C., risk legal sanctions because the products they offer are not available from European manufacturers with dual-units. These stores are catering to their customers and should not be penalized for providing their customers with metric labeled products at the lowest possible price. This is an important because small retailers can only continue to provide those products at the lowest possible price if they can sell the metric-only products using the same packaging that their suppliers use in their home markets.

Requiring retailers or importers to pay additional fees to have packages relabeled (sometimes by hand) to meet the current “dual-units” requirements of the FPLA inflates the price of the products to consumers who routinely purchase them based on metric units. Another reason to avoid relabeling packages after they are received in retail stores is that it may result in conversion errors and labeling which may not meet other labeling requirements for minimum type size, color contrast, or placement. It is important to note that many of these metric-only products are sitting on store shelves along side domestic products that are required to include metric units, so value comparison is possible because consumers can use the metric units to compare package values if a store does not provide unit pricing shelf labels.

## Consumers

Use of the metric system continues to grow in the United States. Increasing everyday use is helping people to better understand it and become more proficient in its use. Consumers purchase packages labeled with only metric units of measure every day. They have become so accustomed to purchasing soft drinks and other beverages by the liter that today practically everyone can identify a 2 liter bottle without reading its label. A greater understanding of the metric system is crucial in helping consumers understand and relate to the measurements used in health care with prescription and over the counter drugs and with nutritional labeling information provided with recipes and on packages of food products. By using metric units in their everyday activities, people are learning to use and relate to the quantities as easily as they currently do using pounds and ounces and feet and inches.

Metric units are already in use on a wide variety of products that are currently sold in the marketplace. For example, prescription drugs, over-the-counter medicines and vitamins are sold in milligrams and grams, and most tires for our vehicles are sized in millimeters. The need for consumers to gain a greater understanding and increase their use of the metric system in these areas is an important priority of this effort so that they can make decisions to improve their health and that of their families. For more than a decade, one of this nation’s top priorities has been to educate consumers about the nutritional value of foods so that they may eat their way to better health. According to the Food Marketing Institute, “more than 85% of supermarket shoppers in the United States attempt to eat a healthier diet.” This important information tells consumers what their daily intake of fat, cholesterol, sodium and carbohydrates should be in metric units and how much the product contains so that they can choose the products that best help them maintain a healthy lifestyle. Many consumer products, such as wine and distilled sprits, are sold by the liter or milliliter, and each day consumers buy millions of 500 milliliter, and 1, 2, and 3 liter bottles of a wide variety of beverages such as water and sodas. Metric units of measurement are also available on many Internet sites, including the Weather Channel, which gives its users the option of viewing temperatures in degrees Celsius, wind-speed in kilometers per hour and precipitation in millimeters.

The importance of increasing our ability to both understand and use the metric system accurately is crucial to protecting public health and safety. A recent news story in the Wall Street Journal reported the results of a study by the U.S. Pharmacopeia’s Center for the Advancement of Patient Safety which found that the “incorrect administration of drugs is a significant cause of errors and poses an especially serious risk to children and emergency room visitors ... for children, the problem often stems from a miscalculation when converting weights from pounds to kilograms, leading to improper dosing.”

It is common to find errors whenever weights and measures are converted and this is not limited to the use of the metric system. They commonly occur when people convert fractional ounces or pounds into decimal units, and when a weight or measure value is converted from one system to another, or even to different units in the same system. Any type of conversion process increases the possibility of mathematical and rounding errors. Also, the original value can be very inaccurate because of errors in weighing and measuring instruments. It is important to note that most users do not know how accurate their scales and measuring instruments are because their accuracy can only be determined using specialized test equipment that most users do not have using test procedures that most do not understand. While the best answer for the situation described in this story is to convert hospital and physician’s scales to the metric system it still will not address the need for the public to learn to understand and relate to metric units so they can understand health related information.

The world marketplace is a constantly changing environment and, while change or proposed change seems difficult regardless of magnitude, U.S. consumers readily accept change in the retail marketplace if the change is properly implemented and they are provided with appropriate information and explanation of the change as part of marketing efforts. The working group will develop and provide case studies and other information to assist manufacturers in developing effective consumer education and marketing efforts.

Ensuring that consumers are able to make value comparisons must be one of the critical issues addressed in the transition of our marketplace to the metric system. There is simply no better tool for value comparison than the unit pricing information that many retailers already provide. The working group will explore ways of increasing uniformity and accuracy of unit pricing as well as increasing its availability throughout the marketplace.

Several comments were made in connection with package labeling and methods of sale that identified a number of packaging or marketing practices (unrelated to metric or inch-pound units) that have recently been found in the marketplace that may be misleading or confusing to some consumers. Tom Coleman, of NIST, described several examples of methods of sale that may confuse consumers (e.g., selling the same product by weight in sales from bulk by dry measure in sales of packages in the same store). He also stressed the need to increase consumer use of unit pricing information when they shop (e.g., in a recent consumer survey by the Progressive Grocer Magazine, 82.8% of the respondents rated the availability of unit pricing presented on store shelf tags as an important criterion for selecting a store.) Incorrect unit prices and scanner pricing errors are also issues that have been recently raised by the media that can be resolved through active collaboration with the retail food industry. Mr. Coleman concluded his talk by saying that “our challenge is to develop guidelines that prevent unfair or deceptive methods of packaging and labeling” to ensure equity in the marketplace and that NIST would work with consumers, manufacturers and retailers and other interested parties to achieve that goal.

# II.The Need to Amend the Fair Packaging and Labeling Act

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t has been more than a decade since the FPLA was amended to require metric units to be displayed on packages. The purpose of that change was to familiarize consumers with metric units so they could learn to equate the quantities to the units of measure. To that end, manufacturers have included metric units on package labels for more than 30 years, especially on products that they intend to sell both here and in other countries. The 1992 changes to the FPLA have been successful in helping consumers learn metric units and relate them to inch-pound quantities.

Prior to 1992, the FPLA required a declaration of quantity to be in inch-pound units as a dual quantity statement, this meant that a package had to include both ounces and the largest whole unit (e.g., 32 ounces (2 lb)) in the net quantity statement and ounces had to be primary, or listed first. The 1992 amendment dropped the dual quantity statement and instead required both inch-pound and metric units to be shown in the largest whole unit with either declaration appearing first. The metric units have proven informative and have helped consumers learn to relate metric quantities to the equivalent inch-pound quantities. The proposed change to the FPLA would allow manufacturers the option of showing only metric units in their net quantity declarations.

Currently, FPLA requires a dual-unit label such as shown in the examples in box A or B:

**A** or

**B**

The proposed amendments to FPLA would permit dual-unit labels such as those shown in boxes A &B or a metric only label as shown in box C:

**C**

All of these examples represent the same quantity of product. However, only the metric declaration is required to be consistently displayed as it appears above so that value comparisons using the metric quantities are always possible. The inch-pound designations may differ, as seen in boxes A and B. Still, the declarations shown above represent the same quantity of product.

The FPLA and other Federal laws and regulations govern the labeling requirements for most consumer products; however, many products fall only under state laws. In 1999, the National Conference on Weights and Measures (NCWM) voted to amend its Uniform Packaging and Labeling Regulation (UPLR) to allow packages of products not subject to Federal regulations to be labeled with only metric units. The NCWM’s position is that the marketplace is the best judge of when metriconly labeling is appropriate. Since January 1, 2000, the UPLR has allowed metric net quantity declarations on consumer packages. The UPLR has allowed metric-only labeling on non-consumer packages (those packages marked for wholesale and industrial trade) for more than 20 years.

According to Mr. Louis E. Straub, Chief of the Weights and Measures Section of the Maryland Department of Agriculture, who represented the NCWM at the forum, more than 40 States (Figure 1) have adopted the metric-only labeling provisions of the UPLR and most others are in the process of adoption.



Figure 1. States that allow metric-only labeling (11/1/02)

This change in state and local labeling requirements enables U.S. firms that also do business in Canada, Mexico, the European Union (EU), and other markets to use a global package labeled in a manner that is compliant in all markets. If Congress follows the lead of the States, Federal laws and regulations would eliminate barriers to the use of metric-only labeling on all products nationally.

Mr. Straub said the NCWM membership is strongly committed to working towards the international harmonization of laws and regulations related to legal metrology, while it also works to ensure equity between sellers and consumers and fair competition in the marketplace. According to Mr. Straub, the NCWM has eliminated barriers to the use of metric units in trade and commerce in all of its model laws and regulations so that the marketplace is free to use the metric system when consumers and business decide to change.

Today, under state and local laws, all scales, gas pumps and other weighing and measuring instruments used in trade and commerce can be calibrated to weigh or measure using the metric system. Also, unit pricing for products sold by weight can be by the price per kilogram or price per 100 grams (e.g., if a product costs $7.69 per pound its unit price in metric units would be shown as $16.95 per kilogram or $1.69 per 100 grams).

## European Union Will Require Metric-Only labeling by 2010

After January 1, 2010, a European Union (EU) Directive will require that all packages sold in the EU be labeled with only metric units of measurement. The global nature of the marketplace means that the Directive will have an impact on the United States market and impact both domestic and European companies. A letter from the European Union regarding this deadline for metric-only labeling is shown in Appendix A. There are other markets around the world where metric units are required, some of which also allow inch-pound units to appear on packages that come from the United States. Governments in these countries want to change their laws to require metric only to be consistent with the EU. Correspondence from the governments of Japan and New Zealand (available at http://www.nist.gov/metric on the Internet) shows broad international support for metric-only labeling and indicates that U.S. exporters and importers will find it easier to buy and sell goods in markets that are predominantly metric-only.

Closer to home, it is important to note that most of the countries in this hemisphere (e.g., Canada, Mexico and the remainder of Central and South America) also require metric units on consumer packages but permit inchpound units to be shown as an added option. The governments of the Americas are working through the Inter-American Metrology System (SIM) to identify and resolve labeling conflicts.  Some of these issues include the predominate/required use of metric units, language differences, and other variations in labeling requirements from one country to another. It is the view of legal metrology officials around the world that allowing only metric units to be used on labels will reduce clutter and may help to improve consumer understanding of quantity and other information.

# III.How Permissible Metric-Only Labeling Will Be Implemented: Concerns and Benefits

C

hristopher Guay of Procter and Gamble expressed that company’s support for the initiative to allow metric-only labeling to be used on packages sold in the United States. Mr. Guay said that companies thrive by providing the best value to retailers and their customers and they need to be able to work with retailers and their consumers to determine when and how to use metric-only on that company’s products. He said current labeling regulations require redundant information to appear on packages, and this results in labels becoming too complex for most people to understand. At times, he said, “there is not enough room on labels to include other information consumers want and need.”

He also presented examples of the net quantity of contents labels Procter & Gamble uses on the packages it produces for sale in the U. S. and Canada.  All his examples showed package labels overflowing withthe required net quantity information that might confuse consumers more than inform them. Mr. Guay also reported that consumers have indicated that they do not like package labels that appear to overflow with net contents information in multiple languages.  Much of this overflow of net content information is a direct result of the FPLA's dual-unit requirement and national requirements for use of multiple languages.  The examples shown in this presentation prove that labels could be simplified if manufacturers could use only metric units.

Procter and Gamble supports the proposed amendment because it will allow market forces to determine when companies switch to metric-only labeling; most likely on a product-by-product basis. Mr. Guay also explained that even if the FPLA is amended, it would likely take several years for the change to have an everyday impact on packages in stores since manufacturers design packaging several years in advance. He also said to expect little change immediately since the marketplace is very competitive and "we cannot afford to alienate our consumers!" The bottom line for manufacturers considering a change will be to conduct research to find out when using metric-only labeling would be appropriate. As companies introduce products with only metric units, they can use marketing and educational efforts to promote the new packaging. This type of effort is commonly used by businesses to help customers to accept new products or to introduce changes to existing brands and it is often supported with consumer information telephone lines.

The forum marked the beginning of a collaborative effort among government, industry and consumers to implement permissible metric-only labeling for products subject to only state regulation. Once FPLA is amended, it can be expanded to include all other products. Together, the working group will develop labeling and advertising guidelines for metric only packages and it can also create educational materials to assist retailers, consumers and others to better understand metric units and encourage consumers to use unit pricing and other available information to make value comparisons.

The option to use only metric units for package declaration information will also:

Permit manufacturers to label with only metric units, which will increase efficiencies for companies to market their products in international trade. Manufacturers will decide which method of labeling to use for both domestic and foreign markets based on the needs of their customers.

Simplify labels and reduce confusion on products that are required to be labeled by volume in one market and by mass in another, by eliminating the use of the same inch-pound unit “ounce” for volume and mass.

Reduce the space required for dual-unit labeling and free it up for other consumer information.

Allowing metric-only products on the shelves alongside products with dual-unit labeling will continue to help consumers establish mental "reference points" of the metric quantities they use routinely. One of the goals of this collaborative effort will be to ensure that consumers are able to make value comparisons between products with dual-unit labeling and those labeled with only in metric units. Another goal will be to explore ways to help consumers make value comparisons on a wider range of products where unit pricing information is not generally available. Another goal will be to promote uniform labeling and eliminate the use of incorrect symbols and improper quantity claims to ensure fair competition.

## Comments from Some Members of the Food Industry

Objections to metric-only labeling came primarily from the Food Marketing Institute (a trade association representing food retailers) and a dairy industry representative. Their concerns relate primarily to the potential problems that would be encountered if changes in package sizes are imposed (i.e., hard conversion to metric sizes). Package size restrictions are no longer seen as a reasonable or practical means of enabling consumers to make value comparisons since unit pricing began eliminating the justification for imposing standardized package sizes in the United States more than three decades ago. A similar process is currently going on around the world with countries such as New Zealand and the member states of the EU considering the repeal of laws that mandate package sizes. The proposed amendment to the FPLA will not impose any restrictions on package sizes, so concerns in this area should be resolved.

Lorelle Young, President of the U.S. Metric Association (USMA) addressed the issue of package size restrictions in her presentation by saying that the USMA “does not support the notion of packaging in standard metric sizes” as it “believes companies are the best judges of the sizes to use in marketing their products.”

