

Engineered Nano- Materials: Consumer Expectations on Product Information

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Consumer Choice Critical for Free and Fair Marketplace

- 1985 UN Guidelines for Consumer Protection: “Access of consumers to adequate information to enable them to make informed choices according to individual wishes and needs” (II 3(c))
- Codex Alimentarius Commission has long recognized importance of food labeling both “for the health protection of consumers and for the promotion of fair practices in food trade”
- US Food and Drug Administration rules recognize importance of disclosing “material facts”

Manipulating Matter at Nanoscale: Consumer Right to Know

- Unique physical and chemical properties – size a “material fact”
- Safety and quality concerns
- Waste management issues
- Manufacturer claims, e.g. Magic Nano and Samsung Silvercare

Ingredient Disclosure Critical Public Health Tool

- Risk management measure to deal with scientific uncertainty. Formally recognized by Codex Alimentarius Commission for food
- Traceability in the event of
 - recalls due to manufacturing defects
 - unforeseen life cycle impacts
 - product quality problems, e.g. nano lithium batteries?
 - Accurate cumulative exposure assessment
 - Confirm risks and benefit claims
 - Increase understanding of nanomaterials

Examples of Risk-relevant Nanoscale Characteristics

- Size
- Shape/Crystal structure
- Charge

**NOMENCLATURE AND DEFINITIONS
URGENTLY NEEDED TO REFLECT
THESE DIFFERENCES**

Consumer Expectations

- Especially concerned with products used on or in the body (e.g. food, cosmetics, clothing) and those that may impact the environment
- Products sold are known to be safe
- Ingredients are disclosed
- Manufacturers and government can respond quickly to find and recall unsafe products
- They can choose to take precautions in the face of uncertainty (GM foods, BPA and phthalates, mercury in fish)
- They can choose products based on “other legitimate factors” e.g. religion, ethics, environmental, etc.

Consumer Expectations Unmet?

- Sunscreens degrade roofing material; increase insect repellent absorption
- Fire and explosion risks from lithium batteries—nano related?
- Silver exposure from socks, bandages, dietary supplements
- Fullerenes in face cream
- Easy mail-order access to dangerous nanomaterials, e.g. carbon nanotubes

Nanotechnology Vulnerable to Manufacturing Defects

- Melamine and lead contamination may be tip of the iceberg
- Could be high potential for mistakes in nanomaterial processing and handling
- No means to clean-up contamination
- High potential for dispersive use

Consumers Need More than just Information

- Labeling – definitions, test methods, nomenclature
- Mandatory premarket safety testing
- Strong regulations limiting use in exposure-intensive applications
- Life cycle assessment
- Ongoing public dialogue

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