front costs than disposable products they are often subjected to a cost/benefit analysis in

order to determine the payback period. (6) Other attributes: Any other positive attributes that are associated with the product but are not listed here.

D. Hazard Factors Associated With Materials

Human Health Hazards

(1) Acute toxicity: The potential to cause adverse health effects from short-term exposure to a chemical substance.

(2) Carcinogenicity: Carcinogenicity is defined EPA using a weight-of-evidence approach (51 FR 33992, September 24, 1986). When quantification is possible, slope factors can also be used to express carcinogenic potency.

(3) Development/reproductive toxicity: EPA defines developmental toxicity as adverse effects on the developing organism that result from exposure prior to conception (either parent), during prenatal development, or postnatally to the time of sexual maturation (56 FR 63798, December 5, 1991). Reproductive toxicity is any adverse effect on an organism's ability to reproduce.

(4) Immunotoxicity: Any adverse effect on an organism's immune system that results from exposure to a chemical substance.

(5) Irritancy: Irritancy can be reported according to the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR part 1910.1200) or using the Draize scale.

(6) Neurotoxicity: Any adverse change in the development, structure, or function of the central and peripheral nervous system following exposure to a chemical agent (59 FR 42272, August 17, 1994).

(7) Sensitization: Sensitization is an immunologically mediated cutaneous reaction to a substance. EPA test methods for evaluating sensitization potential are found in 40 CFR part 798.4100.

(8) Other chronic toxicity: The potential to cause an adverse effect on any organ or system following absorption and distribution to a site distant from the toxicants entry point.

Ecological Hazards

(1) Aquatic toxicity: The potential of a substance to have an adverse effect on aquatic species. Measurement methods for aquatic toxicity can be found in 40 CFR part 797, subpart B.

(2) Avian toxicity: The potential of a substance to have an adverse effect on avian species.

(3) Terrestrial species toxicity: The potential of a substance to have an adverse effect on terrestrial species other than man.

Product Safety Attributes

(1) Corrosivity: EPA defines dermal corrosion as the production of irreversible tissue damage in the skin following application of a test substance. Test methods for evaluating dermal corrosion can be found in 40 CFR 798.4470.

(2) Flammability: Flammability is defined by the OSHA Hazard Communication

FIGURE C-1.-LIFE-CYCLE STAGES

Standard (29 CFR 1910.1200) and ignitability is defined in 40 CFR part 261.21. (3) Reactivity: As defined in 40 CFR 261.23.

Appendix C. Applying a Life-Cycle Perspective ⁹

The life-cycle stages are represented in the graphic below. The "Design" heading below the life-cycle stages is meant to reinforce the fact that the most critical and effective time to address the environmental impacts of a product is in the design stage. Note that the pre-manufacturing stages should reflect environmental effects associated with raw materials, acquisition, intermediate processing, and all activities prior to manufacturing.

To ensure reduction of environmental impacts in as many of the life-cycle stages as possible, the following information is desirable: (1) a description of the environmental impacts at each life-cycle stage, and (2) an indication of at which stage(s) the greatest environmental impacts occur. Strategies can then be developed to reduce environmental impacts at that stage. For example, if the greatest impact occurs in the use stage, Executive agencies could develop strategies for proper maintenance or training. While the federal consumer may be tempted to focus on the last 2 stages, it is possible for environmental impacts to be greater in the first three stages.

Design				
Pre-manufacture	Manufacture	Distribution/packaging	Use, reuse, & mainte- nance.	Waste management.

Appendix D. Summary of Federal Trade Commission Guides for Use of Environmental Marketing Claims ¹⁰

Background

The Federal Trade Commission's Guides for the Use of Environmental Marketing Claims are based on a review of data obtained during FTC law-enforcement investigations, from two days of hearings the FTC held in July 1991, and from more than 100 written comments received from the public. Like all FTC guides, they are administrative interpretations of laws administered by the FTC. Thus, while they are not themselves legally enforceable, they provide guidance to marketers in conforming with legal requirements. The guides apply to advertising, labeling and other forms of marketing to consumers. They do not preempt state or local laws or regulations.

This Commission will seek public comment on whether to modify the guides after 3 years. In the meantime, interested parties may petition the Commission to amend the guides.

Basically, the guides describe various claims, note those that should be avoided because they are likely to be misleading, and illustrate the kinds of qualifying statements that may have to be added to other claims to avoid consumer deception. The claims are followed by examples that illustrate the points. The guides outline principles that apply to all environmental claims, and address the use of eight commonly-used environmental marketing claims.

General Concern

As for any advertising claims, the FTC guides specify that any time marketers make objective environmental claims—whether explicit or implied—they must be substantiated by competent and reliable evidence. In the case of environmental claims, that evidence often will have to be competent and reliable scientific evidence.

The guides outline four other general concerns that apply to all environmental claims. There are:

(1) Qualifications and disclosures should be sufficiently clear and prominent to prevent deception.

(2) Environmental claims should make clear whether they apply to the product, the package, or a component of either. Claims need not be qualified with regard to minor,

⁹ It is recognized that it may be initially difficult to apply a full life-cycle perspective in determining and purchasing environmentally preferable products. However, despite the challenges presented by applying the life-cycle concepts, EPA strongly believes that the life-cycle framework offers the holistic and comprehensive perspective needed to address adequately the issue of

environmental preferability. As efforts are made to apply the concepts more broadly, both in the private and public sector and as the work of those developing the methodology for establishing standards for life-cycle assessment continue, tools will evolve over time that can facilitate application of a life-cycle perspective to environmentally preferable purchasing. Until then, users of this

guidance are encouraged to apply as much of a lifecycle perspective to their purchases of environmentally preferable products and services as possible.

¹⁰ Excerpted from FTC Press Release announcing guidelines for environmental marketing claims.