

“Green” Product Compliance Analytical System (GP–CAS)

Executive Orders 13101 and 13148 established the federal priorities to improve the use of environmentally preferable (“green”) products and prevent or reduce pollution at its source. The California Green Chemistry Initiative (CA–GCI) expects to reduce the use of hazardous materials and reduce waste and pollution. Quantitative criteria for “green” chemicals and products have not been previously defined. Manufacturers and regulatory agencies have heretofore been restricted to qualitative and generic, intuitive considerations (e.g., “less harmful to human health and the environment”). CCS has overcome this deficiency by compiling more than 75,000,000 data elements for over 210,000 chemicals and 350,000 chemical and munition products over the past 20 years and synthesizing these data into quantitative “green” chemical and product ratings with our Web-based “Green” Products Compliance Analytical System (GP–CAS). GP–CAS is based upon 43 chemical “green” criteria, each normalized on a scale of 0% (worst “green”) to 100% (best “green”). These criteria encompass Ecological (air–water–soil), Health (acute–chronic), Safety (fire–reactive [4 levels], and special [4 types]) hazards. In addition, GP–CAS identifies which of 112 state, federal or international regulatory lists include any chemical constituent of a product.

“Green” analyses can be completed within 5–10 seconds. Hierarchical “green” assessments are performed at the chemical, part, or product levels, and “green” ratings are calculated for the holistic “greenness” of the entire product, the separate Ecological/Health/Safety scores, the subcategory scores for Air–Water–Soil for Ecological, Acute–Chronic for Health, the Fire–Reactive [4 levels]–Special [4 types] for Safety, and the individual 43 endpoints for each chemical. These assessments, therefore, not only provide a quantitative “green” rating for a chemical product within a few seconds, but also quantitatively identify the type of compromising hazard(s) and the contributing hazardous chemical constituent(s) within the product. This Web-based system can be utilized for any type of product analyses in any industry, facility, or location,

since analyses are chemical-based, not product specific. Customization for special requirements and maintenance of confidentiality are readily achieved. Incorporation of these “green” analyses into complementary analytical systems has also been accomplished (e.g., our MSDS retrieval, chemical of concern, and manufacturing–import–export systems).

GP–CAS can reap economic benefits throughout the product lifecycle. New product chemical constituents injurious to human health and the environment can be designed out in development simply by activating the Alternative Chemicals icon, thereby avoiding costs for worker exposure, spill clean-up, and environmental pollution—truly preventing pollution at the source! Existing products can be rapidly screened and toxic or polluting constituents (e.g., lead, mercury, PCBs, PBTs, etc.) readily identified for replacement. Procurement offices/agencies can avoid purchasing “nongreen” products that increase usage and disposal costs. GP–CAS certainly fulfills the objectives of Executive Orders 13101 and 13148 and the CA–GCI to accurately identify environmentally preferable products and prevent pollution at the source.

GP–CAS is objective, customizable, and expandable. Since the data for product “green” assessments are chemical-based, all GP–CAS analyses are independent of the product type, the industry, or the reviewer. Additionally, the relational databases and the software design both enable the recipient user group to establish their own, unique standard for “green” assessments. Finally, both the 43 endpoint criteria and the regulatory lists can readily accommodate additions, or deletions, since these databases are relational. In short, GP–CAS assessments are very comprehensive and highly flexible.

5nov2007



"Green" Product Compliance Analytical System (GP-CAS)

"Green" Score Scheme

Significance of each sub-score can be individually weighted

"Endpoint" Criteria

