DRAFT- CTFA

GUIDELINES FOR COSMETIC GOOD MANUFACTURING PRACTICES

Approved by the Quality Assurance Committee

March 4, 1999

Table of Contents

INTRODUCTION

An essential element in cosmetics manufacturing is the establishment, implementation, and enforcement of Good Manufacturing Practices (GMPs) that define control systems designed to assure product quality and consumer safety.

These Guidelines are intended as a model to assist cosmetics manufacturers, suppliers, and contractors in developing GMP programs which will ensure that products are prepared, packaged, stored, and distributed under controlled and sanitary conditions which prevent them from becoming contaminated or rendered injurious to health or unfit for their intended use.

> *Note: These Guidelines do not apply to products which have been designated as*
>
> *drugs or pharmaceuticals by regulatory agencies.*

Two key elements should be considered essential to an effective GMP program:

- Provision of documented systems and procedures that govern the appropriate elements set forth in these Guidelines and any other requirements which may be needed due to local circumstances, laws, or regulations. Such documentation will help to ensure clear understanding, consistent performance, and long-term continuity.
- Periodic audits to verify consistent compliance with GMP systems, to confirm that the systems remain adequate for provision of safe and effective cosmetic products, and to highlight areas which may require improvement.

Additional detailed guidance for developing GMP programs can be found in the publications cited in the ***Bibliography*** at the end of these Guidelines.

QUALITY ASSURANCE

It is vitally important to effective GMP that management establishes quality assurance systems which ensure the attainment and maintenance of quality requirements, and continuously drives plant-wide understanding of the principle that "quality is everyone's responsibility."

Responsibility for managing the quality assurance systems should be assigned to a Quality group which is organizationally independent from other functions and which is suitably organized and staffed with trained personnel. The responsibilities of the Quality group should embrace all activities concerned with attainment and proof of required quality, particularly:

- Maintenance and control of documented quality assurance systems, and performance of appropriate monitoring in order to ensure system compliance.
- Review and approval of specifications, manufacturing and control procedures, test methods, and all other documents which impact upon quality and GMP.
- Assurance of suitable inspection and testing to verify quality conformance.
- Quality disposition of raw materials, packaging materials, in-process materials, and finished products.
- Review of quality results, identification of problems, and pursuit of corrective action.
- Maintenance of quality records.

PERSONNEL

The following organizational and staffing measures will help to ensure GMP effectiveness:

- A specific committee or person should be assigned responsibility for overseeing plant-wide GMP compliance.

- Responsibility for GMP compliance within each involved function should be assigned to appropriate management or supervisory personnel.

- An adequate number of personnel should be provided for the manufacture and control of cosmetic products. They should have sufficient education/experience and training to ensure manufacture of acceptable and safe products.

There should be an established program of ongoing training in all aspects of GMP for all personnel involved in the manufacturing and control of cosmetic products and materials. It is particularly important to ensure, and continuously reinforce, plant-wide awareness of the need to maintain good personal hygiene practices when manufacturing and handling cosmetic products and materials. Training in personal hygiene practices should include these key points:

- Personnel should maintain a high degree of personal cleanliness, wear clean outer garments, and if appropriate wear hair restraints and use clean gloves, wipers, or similar items when working with products and product contact surfaces.
- No person with any health condition that might adversely affect products should have direct contact with raw materials, packaging, products, or product contact surfaces.
- Personnel should store personal belongings and eat, drink, or use tobacco only in designated areas.

PLANT AND GROUNDS

All plant areas and the immediate grounds should be kept clean, orderly, and in good repair. Buildings and work areas should be of suitable size and construction to facilitate adequate cleaning and maintenance and to ensure safe, effective operations.

Plant areas should have adequate lighting, ventilation, and screened doors and windows. Steps should be taken to ensure adequate control of air flow, humidity, temperature, and dust wherever deemed necessary in order to prevent product contamination or degradation.

Water and Plumbing

Water that conforms to applicable drinking water standards should be supplied, under continuous positive pressure, by means of a plumbing system which is free of defects that could contribute to product contamination. Drains should be of

sufficient size to prevent clogging; if they are directly connected to a sewer, they should be equipped with an air-break or other mechanical device in order to prevent back-siphonage.

Protection Against Contamination

Measures should be taken to ensure that facilities are designed, located, and maintained so as to prevent products, raw materials, intermediates, and packaging from being contaminated with filth, microorganisms, or other extraneous matter. This may be accomplished by:

- Separation (by location, enclosure, partitioning, air flow, etc.) of such activities as receiving, storage, mixing and filling, packing and shipping, control and laboratory operations, and cleaning/sanitation of equipment and utensils.
- Design and layout of facilities, equipment, and systems for water storage and delivery in a manner that facilitates cleaning and sanitization.
- Provision of appropriate programs for pest prevention and control.
- Effective housekeeping disciplines.

Facilities for Personal Hygiene

Adequate and readily accessible hygiene (particularly handwashing) facilities should be provided for all personnel who may handle unprotected cosmetic products, raw materials, packaging, and product contact surfaces. Such facilities should ensure provision of:

- Water at a suitable temperature.
- Effective hand cleaning preparations.
- Sanitary towel service or suitable drying devices.
- Clearly-identified waste receptacles, constructed and maintained in a manner designed to promote personal hygiene and prevent product contamination.
- Prominent signs directing personnel to wash their hands before handling products, raw materials, packaging materials, or product contact surfaces.

EQUIPMENT

Equipment and utensils used in manufacturing, packaging, and handling cosmetic products should be of suitable type, design, size, and accuracy for their intended use (mixing, weighing, measuring, testing, etc.). They should be kept clean and orderly, and be properly maintained and calibrated.

Design, Construction, and Installation

Equipment should be designed, constructed, and installed in such a manner as to:

- Facilitate effective operation, cleaning, sanitization, adjustment, and maintenance.
- Assure reliability of controls and uniformity of production.
- Prevent introducing contaminants from prior and current operations into products.

Surfaces that come into contact with products should not be reactive, additive, or absorptive so as to alter products. Substances used to facilitate the operation of equipment, such as lubricants and coolants, should not contact any product in such a way as to alter it.

Cleaning/Sanitization and Maintenance

Procedures for cleaning, sanitization, and maintenance of equipment and utensils should include responsibilities, frequencies, methods, protective measures, and requirements for maintaining suitable records.

Cleaning and sanitization of equipment and utensils should be carried out in a manner designed to prevent contamination of raw materials, packaging materials, or products.

All cleaning compounds, sanitizing agents, and pesticide chemicals should be

- Prominently identified.

- Stored, handled, and used in a manner designed to prevent contamination of raw materials, packaging materials, in-process materials, or products.

- Used only in such a manner, and under such conditions, as will be safe and effective for their intended use.

-

Calibration

Mechanical, automatic, or electronic equipment should be routinely calibrated or checked in accordance with established programs and schedules.

Computer systems used in compiling production and control records should be routinely checked to confirm correct operation. Access to such systems should be restricted to authorized personnel.

INSPECTION AND TESTING CONTROL

Inspection and testing controls to verify conformance of materials and products should include:

- Establishment, approval, and control of adequate specifications, inspection/test procedures, and acceptance criteria for raw materials, product intermediates, packaging materials, and finished products. They should embrace all appropriate chemical, physical, microbiological, and visual/sensory characteristics.

- Documentation of any changes to testing methods and procedures.
- Investigation of any deviations from current approved specifications or procedures.
- Provision of suitable laboratory facilities, work areas, and equipment for inspection/testing.
-
- Designation of specific responsibility for deciding acceptability.
- Systematic control and disposition of nonconforming or unreleased materials and products.
- Procedures for calibration and maintenance of inspection and testing equipment, including actions to be taken with regard to out-of-calibration equipment and mechanisms to prevent the use of such equipment.
- Appropriate use of reference standards, including standardization of test reagents and standard solutions.

- Appropriate recording and retention of inspection/test results for raw materials, packaging materials, process water, product intermediates, and each lot of finished product.

VALIDATION

Procedures should be established for appropriate validation of manufacturing processes and related elements (including equipment, utilities, water treatment systems, gages/instruments, software, and methods), so as to demonstrate that they will consistently perform intended functions and yield results which conform to established requirements.

Prospective validation (prior to implementation) is the most effective approach, because it enables early detection and prevention of potential problems. The basic steps:

- Develop a validation plan which details all required activities, sets forth criteria for success, and specifies all data and information to be gathered and documented.

- Qualify the equipment and all of the support systems required to operate it:

  - Critically examine the equipment design and verify its acceptability.

  - Verify that all aspects of equipment installation adhere to the design intent,
    manufacturer's recommendations, and applicable codes.

  - Verify that equipment operates acceptably throughout specified ranges.

  - Process sample outputs so as to verify consistent acceptable operation.

- Validate the process and all related elements. First, ensure that operators are trained and qualified, that process and measuring equipment is calibrated, and that associated software is validated. Then, incorporating all elements to be used during routine manufacturing, perform sufficient runs and studies to confirm that the process is operating in control and that outputs consistently meet requirements.

Retrospective validation of existing processes and equipment can be accomplished by systematic gathering and analysis of historical and ongoing process and quality data.

PURCHASE, RECEIPT, AND CONTROL OF MATERIALS

Procedures should be established which ensure that all raw materials and packaging materials used in the manufacture and packaging of cosmetic products are verified, identified, stored, handled, and used so as to prevent improper or unsafe use, mixups, or contamination.

Whenever raw materials, packaging materials, or finished products are sourced, procedures should be established which ensure:

- Systematic selection and approval of suppliers, based on assessment of their ability to consistently deliver items and services which meet requirements.
- Appropriate monitoring of suppliers' performance.

Control of Materials

Procedures for receipt, control, sampling, inspection/testing, and release of cosmetic raw materials and packaging materials should be established which ensure that no material is used until it has been identified, sampled, inspected/tested for conformance with established criteria, and released by authorized persons.

> (If urgent use is found to be necessary, the involved finished products should not be released until all materials used have been so identified, sampled, tested, and released.)

Materials which have undergone visual examination and suitable identity confirmation may be released by authorized personnel for use without being routinely sampled or inspected/ tested for conformance, provided that:

- The products with which they are used are identified, sampled, and tested for conformance in such a way that control of individual materials would be duplicative or unnecessary; or
- It is determined that the supplier has established a documented history of satisfactory
  performance and has demonstrated adequate systems for controlling quality in such a way
  as to ensure continued satisfactory performance, or

- The material shipment is accompanied by the supplier's certification that the population has been identified, sampled, inspected/tested for conformance, and released by authorized supplier personnel.

Control of raw materials, as well as of packaging materials (such as containers, closures, labels, and cartons) should include:

- Visual examination to detect any apparent mislabeling, damage to material containers, broken seals, contamination, etc.
- Sampling in accordance with established procedures. Each sample should be suitably identified (material designation, lot number, name of sampler, etc.), and each sampled container or pallet should be suitably identified so that it is readily distinguishable from those which have not been sampled.
- Inspection/testing in accordance with established procedures and acceptance criteria (including any applicable examination to ensure absence of contamination) and disposition by authorized personnel.
- Appropriate testing of primary packaging materials to ensure that they are not reactive, additive, or absorptive so as to alter the performance or safety of the products with which they are used.

- Provision for any appropriate re-testing of materials to assure that they remain in conformance with specifications at the time of their use.

- Clear identification of lots so as to facilitate control, release, and traceability.

- Adequate identificatlon and control systems to prevent the unauthorized use of unapproved, rejected, or otherwise questionable materials (by such means as physical quarantine or manual/computer location control.)

- Handling and storage in a manner designed to prevent mixups and contamination.

- Appropriate records, which may include

  name of supplier;

  date, lot or batch, and amount received;

  examinations and tests performed, and results;

  approval or rejection endorsement by authorized personnel; and
  disposition of any rejected materials.

Process Water

Adequate control should be maintained over process water, which is one of the most critical raw materials used in aqueous cosmetic products. Procedures should be established which ensure that water used in the manufacture of cosmetic products (whether untreated or treated by such means as deionization, distillation, or reverse osmosis) is:

- Supplied to manufacturing by means of systems which are constructed in a manner designed to prevent microbial contamination, and which are cleaned and sanitized according to appropriate frequencies and methods.
- Appropriately monitored and tested in order to verify conformance with applicable chemical, physical, and microbiological specifications.

CONTROL OF PRODUCTION

Procedures should be established which are designed to assure that manufacturing and packaging of cosmetic products is governed by effective systems and controls, such that opportunities for contamination are minimized and that production output consistently conforms to established control limits and specifications.

Two specific elements should be considered basic to effective production control.

- **Product Formula.** Each product should have a specific master (official) formula, in order to assure that each batch of product has the intended composition and to assure uniformity from batch to batch. The product formula should include:

  - Product identification (name and formula number and/or code).

  - Approval by a responsible person.

  - A complete list of raw materials, designated by name and/or code.

  - The weight, measure, or percent of each raw material used.

  - Statement of the total weight, measure, or percent.

  - Provisions for any appropriate variations and adjustments.
  - Specifications governing specific concerns, such as special

handling needs, safety
precautions, microbiological requirements, and environmental measures.

- **<u>Manufacturing Procedures</u>.** Each product formula should be accompanied by procedures which define all steps for ensuring correct and consistent manufacturing and packaging. All processing elements should be described, including as applicable:

  - Start/stop times.

  - Mixing temperatures and speeds.

  - Addition of the specified weight/measure/percent of the correct raw materials.

  - Procedures for line startup and line clearance.

  - Special notations and precautions regarding such concerns as handling, safety,
  microbiology, and the environment.

In addition, production control measures should be established which are designed to ensure:

- Performance of processing and ancillary activities by qualified personnel.

- Identification of major processing equipment so as to clearly indicate what product is being produced.
- Proper performance of processing and control equipment.
- Adequate in-process controls at appropriate intervals.
- Proper control and disposition of in-process materials and products.
- Adequate control over labels:
  - Issuance of correct and up-to-date labels.
  - In-process monitoring of label use so as to prevent mixups.
  - Destruction of excess labels bearing lot or control numbers.
  - Adequate controls to ensure separation of different labels.

- Storage and handling of containers and equipment in a manner adequate to prevent mixups and contamination of products and materials.

- Labeling, holding, and disposition of rejected lots.

<u>Control of Finished Products</u>

Procedures should be established which ensure that all finished products are verified as conforming to established specifications and approved by a designated authority before they are released for packing and distribution.

Controls should be in place which ensure that all finished product containers are correctly and permanently labeled, and that they bear a unique identification (such as a lot/batch code) which enables traceability to manufacturing and distribution records.

NONCONFORMING MATERIAL CONTROL

Procedures should be established that ensure all nonconforming materials are controlled, stored, and disposed so as to prevent inadvertent use or release. Such procedures should encompass raw materials, packaging materials (including labels), in-process materials, and finished products.

Nonconforming materials should be identified as to their identity, order/lot/batch designation, and quality status. They should be segregated from conforming items by such means as

- conspicuous labeling of all offending containers or pallets,
- placement into designated quarantine areas, and/or

- assigning a suitably protected status within computerized stock control systems.

Any decision to use or release nonconforming materials (either "as is" or after rework) should be systematically reviewed and formally approved by involved authorized personnel, fully documented, and communicated to all involved or impacted areas. Reworked materials should be re-verified in order to ensure their acceptability.

It is important to ensure that final physical disposition of nonconforming materials and other unusable items (such as obsolete labels is carried out in a timely and safe manner.

WAREHOUSING AND DISTRIBUTION CONTROL

Procedures should be established which ensure proper storage, handling, and distribution of materials and finished products. Such procedures should include:

- Appropriate rotation of inventory so as to ensure that oldest stock is used or distributed first (commonly known as FIFO - "first in, first out").

- Systematic and effective quarantine, control, and disposition of all unreleased and nonconforming products and materials.

- Appropriate storage conditions (sufficient lighting, appropriate temperature and humidity, orderly aisles and storage areas, etc.).

- Manual or computerized systems which
  - control the storage of materials and products in such a way that their location
    can be readily ascertained,

    - ensure properly authorized receipt and withdrawal of materials and products, and

    - facilitate any necessary recall of product from distribution or from the trade.

-

RECORDS

Procedures should be established that ensure the maintenance of appropriate records pertaining to cosmetic products. Records should be retained for a sufficient period of time to satisfy internal reference needs and applicable legal or regulatory requirements (at least 3 years recommended).

Cosmetic product records typically include the following:

- **Raw material and packaging material records**

  Name of supplier; date, lot/batch number, and quantity or amount received.

  Examinations and tests performed.

  Inspection/testing results (including suppliers' guarantees or certifications).
  Lot/batch disposition, endorsed by authorized personnel.

- **Process water records**
  Details of water system treatment, regeneration, and maintenance.
  Dates of system cleaning and sanitization.
  Results of chemical and microbiological monitoring.
  Dates and details of any remedial measures.
- **Batch records**

  Product formula and identification.

  Reference to the current specification.

  Lot/batch number (or control code), size, and date of manufacture.

  Designation of the equipment used.

  Identification of each raw material used and its lot number.

  Weight and measure of each raw material added to the batch.

  In-process checks and measurements, where appropriate.

  Yield calculations, where appropriate.

- **Processing control records**

  Identification of the product and its batch/lot number (or control code).

  Date of processing.

  In-process and finished product inspection/testing results, endorsed by

    authorized personnel.

  Disposition of each batch or lot, endorsed by designated personnel.

  Calibration and maintenance records.

  Cleaning and sanitization records.

- **Packaging and shipping records**

Identification of the product.

Date(s) of packaging and quantity produced.

Designation of the equipment used.

Processing lot/batch number (or control code).

Records which identify the initial distribution of finished products.

-
- **R&D Master Formula records**
  Product formulation and ingredient listing.
  Product Specifications and Manufacturing Procedures.
  Product Stability and Product-Package Compatibility reports.
  Microbiological Challenge Testing results.
  Clinical Safety studies (as applicable).
  Consumer Use studies.
- **Customer complaint records**
  Date received.
  Customer name, address, phone, etc.
  Details of the complaint and copies of any correspondence.
  Results of reviews and analyses, and details of any corrective action.
  Responses and details of any servicing or other reparation.
- **Validation records**
  Documentation generated during valiadation.

-

RETAINED SAMPLES

Samples should be retained from each lot or batch of finished product (and as appropriate, of raw materials and product intermediates) to enable necessary examination/testing, to be used in assessing stability, and to satisfy applicable laws or regulations. Retained samples should be:

- Representative of the entire lot or batch.
- Packaged in the same container/closure in which the lot/batch is marketed.
- Identified as to lot/batch number (or code) and date.
- Stored in a secure area, in a protective environment.

Sufficient samples should be retained to enable performance of at least twice the number of any anticipated evaluations. Samples should be retained for a sufficient period of time to satisfy internal needs and applicable laws/regulations (at least 3 years is recommended).

-

-

-

CUSTOMER COMPLAINTS

Procedures should be established for receiving, handling, reviewing, responding to, and acting upon written and oral complaints from customers. Such procedures should include:

- Files or databases for logging, investigating, and tracking complaints.
- Appropriate and timely investigation to determine the cause of complaints, followed by any required corrective action.
- Establishment of systems and channels for ensuring priority attention to complaints which involve potential or actual issues of safety or legality.
- Timely response to complaints by authorized personnel.
- Reporting and analysis of complaint trends and significant problems.
- Maintenance of pertinent records, including such information as:
  - Date received and customer's name, address, phone, etc.
  - Details of the complaint and copies of any correspondence.
  - Results of reviews and analyses, and details of any corrective action.
  - Responses and details of any servicing or other reparation.

CUSTOMER RETURNS

Procedures should be established for the handling, examination, and disposition of cosmetic products which are returned by customers. Such procedures should include:

- Provision of a suitable area for storing and processing returned products.

- Examination of products and packaging by qualified personnel.

- Disposition based on appropriate examination and/or analytical testing. Satisfactory test results should be required prior to release of any product which is beyond specified shelf life, which may have been subjected to

temperature/ humidity extremes, or which may have been inappropriately handled or stored.
- Investigation of problems which could implicate other product lots/batches.
- Performance of any rework or refurbishing in accordance with established instructions, followed by re-verification of acceptability.
-
- Appropriate and safe destruction of nonconforming product.
- Maintenance of pertinent records.

AUDITS

An important GMP management tool is the performance of periodic self-audits to verify consistent compliance with established GMP systems, to confirm that the systems continue to be adequate for provision of safe and effective products, and to identify areas that may require improvement.

Management should ensure that:

- GMP audits are performed by qualified and trained personnel who are organizationally independent of those areas and functions being audited.

- Findings are reported to, and reviewed by, the leaders of responsible functions.

- Prompt corrective action is taken with regard to identified shortcomings, and the effectiveness of such action verified by means of follow-up audits.

-

-

CONTINUOUS IMPROVEMENT

Management should establish a climate of continuous improvement by providing systems and resources for identifying problems and improvement opportunities, implementing appropriate improvement actions, verifying that such actions have been effective, and providing suitable recognition of efforts put forth.

- Employees should be provided with, and encouraged to utilize, mechanisms for feedback to management regarding problems and improvement opportunities.

- As appropriate to job function and performance, employees should be trained to identify quality problems, analyze data, evaluate improvement

options, and implement and verify improvement actions.

(Useful tools for pursuing continuous improvement tools include pareto analysis, statistical process control, capability studies, correlation analysis, design of experiments, statistical sampling, and problem solving.)

Management should actively monitor the effectiveness of continuous improvement systems, and should ensure that actions and outcomes are documented.

BIBLIOGRAPHY

Curry, Anita S. and McEwen, G.N. Jr., **CTFA Quality Assurance Guidelines.**

The Cosmetics, Toiletries, and Fragrance Association, Washington, D.C., 1993.

Curry, Anita S., Graf, Joyce G., McEwen, G.N. Jr., **CTFA Microbiology Guidelines.**

The Cosmetics, Toiletries, and Fragrance Association, Washington, D.C., 1992.

Cosmetic Good Manufacturing Guidelines. U.S. Food and Drug Administration, Center for Food Safety and Applied Nutritution, 1998. (http://vm.cfsan.fda.gov/-dms/cos-gmp.htm)

Cosmetic Good Manufacturing Practices. COLIPA - The European Cosmetic, Toiletry and Perfumery Association, Brussels, Belgium, 1994.

CTPA GMP Audit. The Cosmetic, Toiletry & Perfumery Association Limited (CTPA), London, England, 1996.

CTFAA Code of GMP. Cosmetic, Toiletry and Fragrance Association of Australia, 1989.