Regulation 1223/2009 on Cosmetic Products

New Legal Demands for the Production of Wet Wipes

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Quality has to be produced – it can’t be just tested in to a product

ISO 22716

Cosmetics
Good Manufacturing Practices (GMP)
Guidelines on Good Manufacturing Practices
European Cosmetic Regulation
Legal basis – an overview

The cosmetic industry has endeavoured to increase the quality of the products for decades
This regulation has been revised several times
The sixth amendment of this Directive (1993)
  ➢ cosmetic products and their ingredients must be produced by cosmetic GMP rules

BUT: there are no detailed guidelines about cosmetic GMP

Existing guidelines:

- IKW (German Cosmetic, Toiletry, Perfumery and Detergent Association):
  *Cosmetic GMP - guidelines for the production of cosmetic products*
  (updated several times –last 1997)
- Colipa (European Cosmetics Association):
  *Cosmetic good manufacturing practice* (1994)
- Council of Europe:
Legal bases – an overview

- European Cosmetic Regulation 1223/2009 was published on 30 November 2009 came into force on 10 January 2010

- As from **11 July 2013** most of the provisions will be applicable, as the regulations are effective 42 months after coming into force

Main changes at a glance:

- Extensive details on responsibilities regarding the production and marketing of cosmetic products
- The content of product information package (safety dossier) is more demanding
- In future, notification of cosmetic products will be made EU-wide, but process in one country only
- Positive lists of authorised substances are updated
- **Good Manufacturing Practice (GMP) - will be regulated by referring to international ISO standards**
- CMR substances can be authorised for use in cosmetic products, but conditions are more severe
- New rules are implemented for the use of nanomaterials
- New criteria for advertising claims will be laid down. E.g. claims need to be proven
New Cosmetic Regulation 1223/2009 EC

Article 8   Good manufacturing practice (GMP)

1. The manufacture of cosmetic products shall comply with good manufacturing practice with a view to ensuring the objectives of Article 1.

2. Compliance with good manufacturing practice shall be presumed where the manufacture is in accordance with the relevant harmonised standards, the references of which have been published in the Official Journal of the European Union.

ISO 22716
New Cosmetic Regulation
1223/2009 EC

Commission communication in the framework of the implementation of Regulation (EC) No 1223/2009 of the European Parliament and of the Council on cosmetic products

(Text with EEA relevance)

(Publication of titles and references of harmonised standards)

(2011/C 123/04)

<table>
<thead>
<tr>
<th>ESO (1)</th>
<th>Reference and title of the harmonised standard (and reference document)</th>
<th>First publication OJ</th>
<th>Reference of superseded standard</th>
<th>Date of cessation of presumption of conformity of superseded standard</th>
</tr>
</thead>
</table>
| CEN    | EN ISO 22716:2007  
Cosmetics — Good Manufacturing Practices (GMP) —  
Guidelines on Good Manufacturing Practices (ISO 22716:2007) | This is the first publication | — | Note 1 |

Note 1: 
"Note 1" is not clearly visible in the image.
38. In view of the above, the Meeting agreed to recognize the following GMP Guidelines as equivalent to the ASEAN Cosmetic GMP Guideline:

c. Draft International Standard ISO/DIS 22716- Guideline on Cosmetic Good Manufacturing Practice
Introduction:

- These guidelines are intended to provide guidance regarding GMP for cosmetic products

- "Good Manufacturing Practices constitute the practical development of the quality assurance concept through the description of the plant activities that are based on sound scientific judgement and risk assessments. The objective of these GMP guidelines is to define the activities that enable you to obtain a product that meets defined characteristics."

Scope:

- To give guidelines for the production, control, storage and shipment of cosmetic products

- These guidelines cover the quality aspects of the product, but as a whole do not cover safety aspects for the personnel engaged in the plant, nor do they cover aspects of protection of the environment
Contents

Foreword
Introduction
1 – Scope
2 – Terms and definitions
3 – Personnel
4 – Premises
5 – Equipment
6 – Raw materials and packaging materials
7 – Production
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9 – Quality control laboratory
10 – Treatment of product that is out of specification
11 – Wastes
12 – Subcontracting
13 – Deviations
14 – Complaints and recalls
15 – Change control
16 – Internal audit
17 – Documentation
ISO 22716 vs. ISO 9001

QM-system e.g. ISO 9001

Quality management system

Management responsibility

Resource management

Product realization

Measurement, analysis and improvement

ISO 22716
Guidance document to ISO 22716

ISO/TR 24475

First edition
2010-03-01

Cosmetics — Good Manufacturing Practices — General training document

Cosmétiques — Bonnes pratiques de fabrication — Document général de formation
ISO 22716
Basic requirements

• Cosmetic GMP regulations must be followed in all areas of production, for all cosmetic products and for all businesses (large or small)

• Ensure adequate professional qualifications of the person who is responsible for the production

• Provision of suitable premises

• Sufficient staff with appropriate training

• Documentation of the activities and inspections during production
Personnel Hygiene
3.5 Personnel hygiene and health
3.5.1 Personnel hygiene

3.5.1.1 Hygiene programmes should be established and adapted to the needs of the plant. These requirements should be understood and followed by every person whose activities take them into production, control and storage areas.

ISO/TR 24475
The personnel represent a permanent source of potential errors and contaminations and therefore need to have undergone appropriate training in accordance with their level of responsibility.
Personal hygiene
The need of hand disinfection

Friend or "Enemy"?

Hand disinfection is an important hygiene factor!
Personal hygiene

In addition to production hygiene, personal hygiene in particular plays an important role.

The main focus of attention is skin, hand cleansing and disinfection.
Production Hygiene
4.10 Cleaning and sanitization

4.10.1 Premises used for activities described in these guidelines should be maintained in a clean condition.

4.10.2 Cleaning and, if necessary, sanitization should be carried out to achieve the objective of protecting each product.

4.10.3 Cleaning and, if necessary, sanitizing agents to be used should be specified and effective.

4.10.4 There should be cleaning and, if necessary, sanitization programmes corresponding to specific needs of each area.
When sanitization is necessary?

4.10 Cleaning and sanitization

4.10.4 There should be cleaning and, if necessary, sanitization programmes corresponding to specific needs of each area.

Sanitization is necessary if there is a risk of microorganisms proliferation in each aqueous process.
Basic requirements

Hygiene

Order

Cleanliness
5 Equipment

5.1 Principle

Equipment should be suitable for the intended purpose and capable of being cleaned and, if necessary, sanitized and maintained. This clause applies to all equipment within the scope of these guidelines. If automated systems are introduced into activities described in these guidelines, they should take into account the application of the given relevant principles.

ISO/TR 24475

If there are ridges or unreachable corners, there is a risk of contamination of the previous manufacturing run mixing with the current batch.

Hygienic design is required!
Installation of pipes
(EN 1672-2)

No draining off design

Draining off design
Outlet of container (ISO 14159)

No draining off design

Draining off design
Optimising of flexible hose connections

Short unhygienic design

Improved design
5.5 **Cleaning and sanitization**

5.5.1 All equipment should be subject to an appropriate cleaning and, if necessary, sanitization programme.

5.5.2 Cleaning and sanitizing agents should be specified and effective.

5.5.3 Where equipment is assigned to continuous production or production of successive batches of the same product, equipment should be cleaned and, if necessary, sanitized at appropriate intervals.
## Example for an individual hygiene plan

<table>
<thead>
<tr>
<th>Application area</th>
<th>Product</th>
<th>Use level</th>
<th>Frequency</th>
<th>Use advice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production vessel</td>
<td>grotonol® 3025</td>
<td>0.5 % solution</td>
<td>After every use - at least weekly</td>
<td>Add the biocide to the last rinsing water</td>
</tr>
<tr>
<td></td>
<td>grotonol® SR 1</td>
<td>1.0 % solution</td>
<td>Once or twice a year</td>
<td></td>
</tr>
<tr>
<td>Inlets / outlets</td>
<td>grotonol® 3025</td>
<td>0.5 % solution</td>
<td>After every use</td>
<td>Thorough cleaning of residues first</td>
</tr>
<tr>
<td></td>
<td>grotonol® SR 1</td>
<td>1.0 % solution</td>
<td>Once or twice a year</td>
<td></td>
</tr>
<tr>
<td>Storage tanks</td>
<td>grotonol® 3025</td>
<td>0.5 % solution</td>
<td>Every 3 month</td>
<td>Spray on all surfaces</td>
</tr>
<tr>
<td></td>
<td>grotonol® SR 1</td>
<td>1.0 % solution</td>
<td>Once or twice a year</td>
<td></td>
</tr>
<tr>
<td>Pipework</td>
<td>grotonol® 3025</td>
<td>0.5% solution</td>
<td>Every 3 month</td>
<td></td>
</tr>
<tr>
<td></td>
<td>grotonol® SR 1</td>
<td>1.0 % solution</td>
<td>Once or twice a year</td>
<td></td>
</tr>
<tr>
<td>Working tools</td>
<td>grotonol® 3025</td>
<td>1.0 % solution</td>
<td>Permanently</td>
<td>Clean tools first before keeping in disinfectant solution</td>
</tr>
</tbody>
</table>
Batch vessels and pipe work

Add 0.5 % grotanol® 3025 into last rinsing water.

Spray and circulate the diluted solution throughout the whole production system including pipes, pumps, filters and vessels.

Discharge the used solution. Rinsing with water usually is not necessary.

Generally we do not recommend rinsing with water if production is not started immediately after disinfection. If the water is unpreserved there is a high risk of recontamination.
6 Raw materials and packaging materials

6.1 Principle

Raw materials and packaging materials that are purchased **should meet defined acceptance criteria relevant to the quality of finished products.**

**Demand for the finished product:**

It is generally accepted that for cosmetics, the total viable count for aerobic mesophylllic microorganisms should not exceed $X \text{ cfu/g or cfu/ml}$

<table>
<thead>
<tr>
<th></th>
<th>Cosmetic Europe</th>
<th>PCPC</th>
<th>SCCS</th>
<th>US FDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Products specifically intended for children under 3 years</td>
<td>$5 \times 10^2$</td>
<td>$5 \times 10^2$</td>
<td>$10^2$</td>
<td>$10^2$</td>
</tr>
<tr>
<td>Products to be used in the eye area and on mucous membranes</td>
<td>$5 \times 10^2$</td>
<td>$5 \times 10^2$</td>
<td>$10^2$</td>
<td>$10^2$</td>
</tr>
<tr>
<td>All other products</td>
<td>$5 \times 10^3$</td>
<td>$5 \times 10^3$</td>
<td>$10^3$</td>
<td>$10^3$</td>
</tr>
</tbody>
</table>

Cosmetic Europe ➔ previously Colipa
PCPC (Personal Care Products Council) ➔ previously CTFA
SCCS (Scientific Committee on Consumer Safety) ➔ previously
Microbiological demands for raw materials

Water:
- Drinking water quality (< 100 cfu/ml)

Additives:
- Cosmetic grade (< 1000 cfu/ml)

Nonwoven:
- e.g. < 1 cfu/dm² or < 100 cfu/g
Critical raw materials

Water and water-containing raw materials could be contaminated

- High concentrated material is less critical
- Water-free but water soluble compounds are normally considered to be safe
- Water insoluble compounds can have a small water phase e.g. from condensing water
Quality of water

6.8 Quality of water used in production

6.8.1 The water treatment system should supply a defined quality of water.

6.8.2 Water quality should be verified by either testing or monitoring of process parameters.

6.8.3 The water treatment system should permit sanitization.

6.8.4 Water treatment equipment should be set up so as to avoid stagnation and risks of contamination.

Water is the most critical raw material
In any quality assurance system the importance of systematic monitoring of plant hygiene must not be underestimated.

With dip slides you have a quick reliable method of production hygiene testing in all production areas to suit any plant.
Sampling by means of immersion

Dip into liquid samples for a few seconds.
Highly viscous or film-forming materials are sampled with a sterile swab and streaked out onto the nutrient medium.
Sampling by means of contact

For surfaces and solid media, press both sides onto the surface.
Place tubes vertically in an incubator heated to 27 - 30 °C. After incubation for 24 - 48 hours the result can be read off from the TTC agar (yellow). Yeasts and thread fungi grow on the Rose Bengal agar (pink) after an incubation period of 72 hours.
Interpretation of the results: mikrocount® combi

Total Germ Count Bacterial Agar

Interpretation of the results:

- **10^2**
- **10^3**
- **10^4**
- **10^5**
- **10^6**
- **10^7**

Bacteria [cfu/ml]
Dip slides -
Interpretation of the results

Interpretation of the results: mikrocount® combi

Rose Bengal Agar

10^2  
10^3  
10^4 Yeasts [cfu/ml]  
10^5  
10^6
Dip slides -
Interpretation of the results

Interpretation of the results: mikrocount® combi
Rose Bengal Agar

+ slight
++ moderate
+++ heavy

moulds [semi-quantitative]
7.2 Manufacturing operations
7.2.1 Availability of relevant documents

7.2.1.1 Relevant documentation should be available at each stage of manufacturing operations.

7.2.1.2 Manufacturing operations should be carried out according to manufacturing documentation, including:

d) detailed manufacturing operations for each stage, such as addition of raw materials, temperatures, speeds, mixing times, sampling, cleaning and, if necessary, sanitizing of equipment, and bulk product transfer.
7.2.2  **Start-up checks**
Before starting any manufacturing operations, it should be ensured that:

a) all documentation relevant to the manufacturing operations is available;

b) all raw materials are available and released;

c) suitable equipment is available for use, in working order, **cleaned and, if necessary, sanitized**;

d) clearance of the area has been performed to avoid mixing with materials from previous operations.
Status labelling

Source: ASEAN Cosmetic Good Manufacturing Practice (GMP) - Training Modules No. 1
Critical Control Points (CCP’s) (selection of major CCP’s)
Validation of the preservation

• The challenge test to prove the microbiological safety has to be carried out with the finished wet wipe in the original package.
  • A good preservation of the wet tissue liquid does not necessarily mean a well preserved finished product.
  • The schülke FeuTuKo Test, proves a good preservation of the finished product.

• If the wet tissue liquid is stored for more than 3 hours before the converting, additionally the microbiological stability of the liquid has to be proved (rests of biocide in the tissue, e.g. from the binder applied on air-laid, can stabilise the finished product)
  • The schülke KoKo Test, proves a good preservation of wet tissue liquid
How to make sure the preservative is really added?

From our experience one of the main reasons of the failure of a preservative (in a validated system) is, to forget to add it!

• Manual dosing should be done by the “four eye principle“
  • One is weighing the “small” compounds
  • Another is dosing them to the batch

• For automatic dosing mass flow-meters should be preferred
  • Volumetric systems are dependent on the temperature
  • At least an alarm for an empty dosage system is necessary
  • Also air will be measured
Critical downtime

- Prevent long unpreserved phases > 3h in the production processes

- Train your staff that even during unplanned downtime this is guaranteed
  - Install special QC checks if a longer period occurs by accident
  - Never add the water to the vessel a day before

Initial bacteria count: 100 cfu/g or ml
Uniform impregnation

Is the finished product uniformly impregnated?

• Impregnating substrate prior to conversion into wipes provides a more uniform inter-wipe

• Variation in weight of impregnated wipe dependant upon method of manufacture
• An impregnation of the non woven prior to conversion into the finished stack of wipes provides a more uniform product

• Prevent a discharge of actives from an immersion bath – especially cationic compounds are adsorbed on the non woven

• Stack impregnation leads to a less uniform distribution of the wet wipe liquid

• The ingredients of the wet tissue liquid can be separated on the tissue like in this thin layer chromatography

• Depending upon the dosing system you can get a non-uniform impregnation leading to microbiological spoilage

• Apply the wet wipe liquid uniformly with a shower from the top
The influence of the pH value on the efficacy of organic acids

Benzoic acid ($pK_a$ 4.18)

<table>
<thead>
<tr>
<th>pH</th>
<th>Amount undissociated acid</th>
<th>Available at a doses of 0.3%</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5</td>
<td>32%</td>
<td>0.096%</td>
</tr>
<tr>
<td>5.0</td>
<td>13%</td>
<td>0.039%</td>
</tr>
<tr>
<td>5.5</td>
<td>4%</td>
<td>0.012%</td>
</tr>
</tbody>
</table>

Sorbic acid ($pK_a$ 4.76)

<table>
<thead>
<tr>
<th>pH</th>
<th>Amount undissociated acid</th>
<th>Available at a doses of 0.3%</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5</td>
<td>65%</td>
<td>0.195%</td>
</tr>
<tr>
<td>5.0</td>
<td>36%</td>
<td>0.108%</td>
</tr>
<tr>
<td>5.5</td>
<td>15%</td>
<td>0.045%</td>
</tr>
</tbody>
</table>
The influence of the nonwoven on the pH

Check the pH value not only in the wet tissue liquid!

Typical situation
pH adjusted in the wet tissue liquid to 5.1 (1 % euxyl® K 700, citric acid)

<table>
<thead>
<tr>
<th>Wet wipe liquid itself</th>
<th>Wet wipe liquid squeezed from the tissue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediately after production</td>
<td>After one month storage</td>
</tr>
<tr>
<td>pH 5.1</td>
<td>pH 5.1</td>
</tr>
</tbody>
</table>

✔ Particularly Airlaid showed a severe influence of the pH
ISO 22716 is a comprehensive cosmetic safety management systems standard.

- It integrates the typical requirements for product and process quality Good Manufacturing Practices requirements with other quality guidance, for example as laid down in the prerequisites for ISO 9001.

- It allows for easy implementation in organisations of all sizes and levels of complexity.

- It fosters legal compliance as adopted by regulators around the world.

- It controls and reduces cosmetic products hazards and promotes continuous improvement.
Thank you very much for your attention!

Any questions?

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