



MAA Aerosol 101

Formulating Considerations for Aerosol Products

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Think Before You Leap

Multiple Components

Multiple Effects

Dealing with Multiple Regulations

A Product that works!



Marketing

What kind of product is this going to be?

How do you want the product to come out
of a can?

Want it to be like product ABC but different!

Where is this product going to be sold?

What kind of label claims are there?



Marketing and More

Is this product going to be Dfe?

Is this going to be sold to Wal*Mart?

Is this a Sustainable product?

Are the components including the empty container recyclable?



Regulatory

Paint

Consumer Products

Non-Regulated Products

Most Restrictive Limit

CPSIA

REACH and CLP

GHS


VOC Considerations

Massed Based VOC or % VOC by Weight

Exempt Solvents (Acetone, Oxsol,
LVP Solvents)

Maximum Incremental Reactivity (MIR)

No Exempt Solvents – Choice of Solvents



Banned Solvents or Limited Use Solvents

2-BE (Canada) – Product Form
Dependent

Toluene – Banned in Europe

Chlorinated Solvents - Automotive

Phthalates – Bans and proposed
bans in several countries and
states



Proposition 65

Warning: This product contains a chemical known to the State of California to cause cancer, birth defects or reproductive harm



WHERE ARE YOU AT?

YOU HAVE NOT EVEN STARTED
FORMULATING BUT HAVE
NUMEROUS LIMITATIONS AND
RESTRICTIONS PLACED ON
YOU TO DEVELOP A PRODUCT



Formula Type

Solvent Based

Water-based



Sprayability

Product Type (Solvent or Water-based)

Propellant

Sprayhead

Valve and Valve Components -
Traditional and Bag-on-Valve



Viscosity and Surface Tension

Viscosity

(how thick or how thin)

Surface Tension

(Elastic like force in the surface of a liquid, tending to minimize the area of the surface, caused by intermolecular forces between surface molecules.)



Other Considerations

Container Type

Agitator

Flame Extension



Container Type

Steel

Aluminum

Plastic

Glass



Agitators

Do you even need an agitator ?

Steel or Glass?

Ball or Slug?



Paint Considerations


Resin System (Solvent or Water-base)

Propellant

Pigments

Solvents

Additives



Consumer Products Considerations

Product Type (Solvent or Water-based)

Propellant

Solvents

Additives



Cookbook Chemistry

Formula or Recipe

Test the product for properties

Adjust the formula

Remake the formula with adjustments



Stability Testing

Corrosion Testing

Hot Box Testing

Shelf Life Testing



ARE WE DONE YET?

Do you have a product that works?

Did the project come in on time?

Does it meet the customer's requirements?

Reformulation

The process in which the product that was put into the market needs to have a different set of parameters because of a change in market.

I saw a competitor came out with this new product.

I have this great new idea for a product, it's really cool.



Reformulation

Changes in technology to packaging

Advances/Changes in raw materials

Cost Considerations

Regulatory Changes



Questions?