Presentation Topics

• Common Goals
• Regulatory Considerations
• Child Resistant Packaging
• Dose / Serving Measuring Devices
• Catalog of Selected / Approved Packaging
• Bulk Combined Orders Concept
• Eco-Friendly Packaging & Recycling
Common Goals

• Promote and advocate for a vibrant and reasonably regulated Alaska-based cannabis industry

• Eliminate the stigma surrounding marijuana through exemplary business practices

• Reduce operating costs for Alaska marijuana licensees to enable their success
Regulatory Considerations

• No need to re-invent the wheel: **Federal regulations** already address packaging & labeling for food, drugs, and consumer products. Alaska can adopt key points from those regs.

• If any changes are made to the regulations, there must be a **grace period**, allowing licensees to use-up existing inventories of affected packaging & labeling.

• We may not agree with everything other states have done, but we can **benchmark** against them as a reference point to create our own **best practices**.
## Relevant Rules & Regulations

<table>
<thead>
<tr>
<th>Level</th>
<th>Area</th>
<th>Regulations</th>
<th>Adopted &amp; Enforced in Alaska by . . .</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>Marijuana</td>
<td><strong>AS 17.38 Statutes</strong> – The Regulation of Marijuana</td>
<td>SOA AMCO (Alcohol &amp; Marijuana Control Office)</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>3 AAC 306 Regulations</strong> for the Marijuana Control Board</td>
<td></td>
</tr>
<tr>
<td>Federal</td>
<td>Consumer Products</td>
<td><strong>NIST Handbook 130 – Chapter IV. A. Uniform Packaging and Labeling Regulations</strong></td>
<td>SOA Dept. of Weights &amp; Measures</td>
</tr>
<tr>
<td>Federal</td>
<td>Food &amp; Drugs</td>
<td><strong>CFR Title 21 – Food and Drugs, Part 101</strong></td>
<td>SOA Dept. of Environmental Conservation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FDA Food Labeling Guide</td>
<td></td>
</tr>
<tr>
<td>Federal</td>
<td>Child Resistance</td>
<td><strong>ASTM D3475-17 Standard Classification of Child-Resistant Packages</strong></td>
<td>SOA AMCO (Alcohol &amp; Marijuana Control Office)</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>CFR Title 16, Part 1700 – Poison Prevention Packaging</strong></td>
<td>CPSC (Consumer Product Safety Commission)</td>
</tr>
</tbody>
</table>

Declarations: Identity, Quantity, Responsibility . . . Nutrition Facts, Ingredients, Sub-Ingredients, Allergens, Expiration Date
Child Resistant Packaging

CFR (Code of Federal Regulations) Title 16, Part 1700

• Requirements under the Poison Prevention Act

• Child Resistant Packaging
  o Significantly difficult for children under five years of age to open or obtain a harmful amount of the contents within a reasonable time.
  o Must also not be difficult for normal adults to use properly.

• Compliance Test Summary
  o For a package to be child resistant, a total of 80% of the children tested according to the procedure must not open the package during a full 10 minutes of testing.
  o To make sure that adults are able to use a child-resistant package properly, 90% of adults tested have up to five minutes, and then another minute in a second test, to open and close the package so that it is child resistant again if specified.
Child Resistant Packaging

SOA Requirements

- Child Resistant
- Opaque
- Re-sealable

These bags meet SOA Requirements, as long as they are:

1. Opaque* on both sides & heat sealed, or
2. Heat sealed & placed in an outer opaque bag, or
3. They have resealable To CR zipper and opaque or placed in opaque bag.

* NOTE: On December 5, 2021, 3 AAC 306.345 was amended to allow for the exit package to be provided by means of it being the consumer’s own opaque bag.
ASTM D3475-09 Standard
Classification of Child-Resistant Packages

- ASTM Type I . . . . . . Reclosable Packaging Continuous Thread Closure
- ASTM Type II . . . . . . Reclosable Packaging Lug Finish Closure
- ASTM Type III . . . . . . Reclosable Packaging Snap Closure
- ASTM Type IV . . . . . . Reclosable Packaging Continuous Thread Closure
- ASTM Type VII . . . . Aerosol Packages
- ASTM Type VIII . . . . Non-Reclosable Packaging Semi Rigid (Blister)
- ASTM Type IX . . . . . . Non-Reclosable Packaging Semi Rigid (Blister)
- ASTM Type X . . . . . . Box Or Tray Package
- ASTM Type XI . . . . . . Reclosable Packaging Flexible
- ASTM Type XIII . . . . Reclosable Packaging Semi Rigid (Blister)

More information available from CPSC (Consumer Product Safety Commission):

Push Down & Turn, Squeeze While Turning, Squeeze-to-Open, Align Two Points, Unlock Outer Ring to Release Lugs, Depress Fitment & Slide to One Side, etc.
# Child Resistant Packaging

The table below is borrowed from the Oregon “Packaging and Labeling Guide”. It illustrates the policy the OLCC has adopted for Child-Resistant Packaging.

<table>
<thead>
<tr>
<th>Type of Packaging Required</th>
<th>Re-sealable &amp; Child-Resistant throughout Life of the Product</th>
<th>Single-Use Child-Resistant</th>
<th>Child-Resistant Packaging Not Required</th>
</tr>
</thead>
</table>
| **Type of Marijuana Item Sold** | • Edibles   
• Topicals   
• Tinctures and Capsules   
• Concentrates   
• Extracts   
• Transdermal Patches and Suppositories   
• Cannabinoid Products | • Usable Marijuana | • Immature Plants   
• Seeds |

**NOTE:** Products may be packaged directly into containers that are OLCC approved and certified child-resistant or the packaged product may be placed into an approved exit package at the point of sale.
Tamper Evident Packaging

• A tamper-evident package is one having one or more indicators or barriers to entry which, if breached or missing, can reasonably be expected to provide visible evidence to consumers that tampering has occurred.

• To reduce the likelihood of successful tampering and to increase the likelihood that consumers will discover if a product has been tampered with, the package is required to be distinctive by design or by the use of one or more indicators or barriers to entry that employ an identifying characteristic (e.g., a pattern, name, registered trademark, logo, or picture).
Tamper Evident Packaging

T-EV Cap Seals
Evidence: Seal is broken or missing

T-EV Snap Ring Caps
Evidence: Ring is detached from cap

T-EV Shrink Bands
Evidence: Shrink band or broken or missing

T-EV Tape
Evidence: “Void/Open” message exposed

NOTE: Some tamper evident packaging may also qualify as “child resistant” through the testing & certification process.
SOA Required Product Packaging (Edibles)

Potency limits in packaging each edible marijuana product for resale by a retail marijuana store.

10mg/serving, 10 servings/pkg. (100mg/pkg.) - active THC or Delta 9

The reported content must be within 20 percent of the manufacturer's target; for example, in a 25 milligrams total THC package with five servings, each serving must contain between four and six milligrams of THC.

Multiple Servings: Product itself must have markings or demarcations clearly delineating each serving of the product. For liquid marijuana products with multiple servings the packaging must indicate the number and size of individual servings.

Package must indicate:
- mg THC/serving
- servings/package
- mg THC/package (+/-20%)

Protect the product from contamination and not impart any toxic or damaging substance to the product.

No images or cartoons specifically targeting individuals under 21.

(See: 3 AAC 306.560)
Dose / Serving Measuring Devices

- External dosing cups with graduated marking
- Graduated raised markings on bottles
- Dosing cup integrated with bottle cap
- Dropper bottles with graduated markings on dropper stem
- Graduated dose markings Printed on bottle or label
- Graduated cylinders
- Dosing Syringes
Child Resistant Packaging for Drinkables

Push Down & Turn CR Caps

Serving marks embossed on bottle.
2fl.oz. (60mL) Total
12mL Servings

Accuracy
Confirmation
using calibrated scale.

8 fl.oz. (237G)
2fl.oz. (60mL)

Step 4:
48mL Test
THC Limits

• 3 AAC 306.355. Limit on quantity sold
  A retail marijuana store may not sell to any one person per day
  (1) more than one (1) ounce of usable marijuana;
  (2) more than seven (7) grams of marijuana concentrate for inhalation; or
  (3) more than 5,600 milligrams of THC in combined sales of marijuana and marijuana products.

• 3 AAC 306.370. Onsite consumption endorsement for retail marijuana stores
  For consumption at the time of purchase . . .
  (1) Maximum of one (1) gram marijuana bud or flower,
  (2) edible marijuana products in quantities not to exceed 25 milligrams of THC to any one person per day;
  and
  (3) a vaping device that contains not more than 0.3 grams of marijuana concentrate to any one person per day
THC Limits

• **Edibles (for oral consumption) - 3 AAC 306.560.** Potency limits per serving and transaction for edible marijuana products
  - 10mg THC per serving; 100mg THC per package *(statewide if not superseded by local jurisdiction ordinances)*
  - 5mg THC per serving; 50mg THC per package *(limits set by certain local jurisdiction ordinances)*
  - Maximum allowable THC amounts are also limited by 3 AAC 306.355 and 3 AAC 306.370.

• **Non-Edible Concentrates (for Inhalation)**
  - Maximum allowable THC amounts are limited by 3 AAC 306.355 and 3 AAC 306.370. *(< 5600mg)*

• **Non-Edible Concentrates (for Topical Application)**
  - Maximum allowable THC amounts are limited by 3 AAC 306.355 and 3 AAC 306.370. *(<5600mg)*
# Drinkables “Small Bottle” Examples

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Product Type, Intended Use</th>
<th>Package Characteristics</th>
<th>Package Size fl.oz. (mL)</th>
<th>Total THC (per Pkg.)</th>
<th>Serving Qty.</th>
<th>THC per Serving (mg)</th>
<th>THC % Conc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Beverage</td>
<td>Serving demarcations indicated on label</td>
<td>2 fl oz (60mL)</td>
<td>50mg</td>
<td>10</td>
<td>5mg</td>
<td>0.083%</td>
</tr>
<tr>
<td>B</td>
<td>Liquid Drink Additive</td>
<td>Bottle, Total 10mg THC</td>
<td>2 fl oz (60mL)</td>
<td>10mg</td>
<td>2</td>
<td>5mg</td>
<td>0.017%</td>
</tr>
<tr>
<td>C</td>
<td>Tincture/Syrup/Elixir</td>
<td>dropper bottle</td>
<td>2 fl oz (60mL)</td>
<td>50mg</td>
<td>5</td>
<td>10mg</td>
<td>0.083%</td>
</tr>
<tr>
<td>D</td>
<td>Syrup</td>
<td>Demarcations on bottle</td>
<td>1 fl oz (30mL)</td>
<td>25mg</td>
<td>5</td>
<td>5mg</td>
<td>0.083%</td>
</tr>
<tr>
<td>E</td>
<td>Liquid Creamer to add to coffee or tea</td>
<td>Glass jar with demarcations on label</td>
<td>2 fl oz (60mL)</td>
<td>10mg</td>
<td>10</td>
<td>1mg</td>
<td>0.017%</td>
</tr>
<tr>
<td>F</td>
<td>Breath Spray</td>
<td>Aerosol spray bottle</td>
<td>0.067 fl oz (2mL)</td>
<td>100mg</td>
<td>30</td>
<td>10mg</td>
<td>5%</td>
</tr>
<tr>
<td>G</td>
<td>Fruit Beverage</td>
<td>Serving demarcations indicated on label</td>
<td>2 fl oz (60mL)</td>
<td>25mg</td>
<td>5</td>
<td>5mg</td>
<td>0.042%</td>
</tr>
</tbody>
</table>

Approximate Equivalents: 1mL=1000mg 1mL=1g 1fl.oz.=30mg 2fl.oz.=60mg
Catalog of Selected / Approved Packaging
“The Oregon Model”

Following are a few useful links which provide an introduction to Oregon’s model for packaging & labeling of marijuana:

• PACKAGING & LABELING EVALUATION

• PACKAGING AND LABELING GUIDE

• APPROVED PACKAGING LIST (RESEALABLE, CONTINUALLY CHILD-RESISTANT PACKAGES)
  https://www.oregon.gov/olcc/marijuana/Documents/Packaging_Labeling/Approved_List_Resealable_CR.pdf

• PACKAGING AND LABELING UPDATE (includes “SELL DOWN PERIOD”)

• PACKAGING FOR SALE TO CONSUMER
  https://secure.sos.state.or.us/oard/viewSingleRule.action;JSESSIONID_OARD=svwXlg2r6XaHn2dZRNZ6-gFLM2u9tzAX7jNeKjxxfXh_vs9SEVyz!2121836845?ruleVrsnRsn=285398
Bulk Combined Ordering Concept

*Buying Group Members all buy packaging from Central Source*

**Opportunities**
- Lower Per-Unit Costs, could help protect licensees from impacts of nationwide legalization
- Uniformity, consistent quality, and assurance of regulatory compliance
- Reliable supply / availability of packaging & labeling materials

**Challenges**
- Current issues with Global Supply Chain
- Cost of storage & warehousing goods until needed for “just-in-time” delivery
- Licensees are accustomed to working independently
- Licensees use unique packaging & labeling to differentiate their products in the marketplace
- Upfront costs and MOQs (Minimum Order Quantities)
### Bulk Combined Ordering Concept

#### Volume Based Percentage Discount Concept

<table>
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<tr>
<th>Item / Quantity</th>
<th>20,000</th>
<th>50,000</th>
<th>100,000</th>
<th>500,000</th>
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<tbody>
<tr>
<td>J-Tubes</td>
<td>A%</td>
<td>B%</td>
<td>C%</td>
<td>D%</td>
</tr>
<tr>
<td>Pop-Tops</td>
<td>E%</td>
<td>F%</td>
<td>G%</td>
<td>H%</td>
</tr>
<tr>
<td>Mylar Bags</td>
<td>I%</td>
<td>J%</td>
<td>K%</td>
<td>L%</td>
</tr>
<tr>
<td>Concentrate Jars</td>
<td>M%</td>
<td>N%</td>
<td>O%</td>
<td>P%</td>
</tr>
<tr>
<td>Hemp Boxes</td>
<td>Q%</td>
<td>R%</td>
<td>S%</td>
<td>T%</td>
</tr>
<tr>
<td>Tin Boxes</td>
<td>U%</td>
<td>V%</td>
<td>W%</td>
<td>X%</td>
</tr>
<tr>
<td>Glass Bottles</td>
<td>Z%</td>
<td>AA%</td>
<td>BB$</td>
<td>CC%</td>
</tr>
</tbody>
</table>

### Diagram

- **Forecasts**
  - Central Supply & Procurement (Contract)
- **Deposits**
- **Orders**
- **Shipments**
- **Regional Warehousing (Contract)**
- **Marijuana Licensees**

**Pathways**:
- Forecasting
- Orders
- Shipments
- Regional Warehousing (Contract)
- Marijuana Licensees
# Model to Accommodate Bulk Ordering

<table>
<thead>
<tr>
<th></th>
<th>Current</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
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<tbody>
<tr>
<td><strong>Territory</strong></td>
<td>Alaska</td>
<td>Alaska</td>
<td>Alaska</td>
<td>Alaska</td>
</tr>
<tr>
<td><strong>Market Segments</strong></td>
<td>Marijuana Hemp/CBD</td>
<td>Marijuana Hemp/CBD</td>
<td>Marijuana Hemp/CBD</td>
<td>Marijuana Hemp/CBD</td>
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<tr>
<td><strong>Factories</strong></td>
<td>China Taiwan U.S.</td>
<td>China Taiwan U.S.</td>
<td>China Taiwan U.S.</td>
<td>China Taiwan U.S.</td>
</tr>
<tr>
<td><strong>Warehousing &amp; Logistics</strong></td>
<td>Anchorage</td>
<td>Anchorage TBD</td>
<td>Anchorage TBD</td>
<td>Anchorage TBD</td>
</tr>
<tr>
<td><strong>Sales Offices</strong></td>
<td>Anchorage</td>
<td>Anchorage</td>
<td>Anchorage TBD</td>
<td>Anchorage TBD</td>
</tr>
<tr>
<td><strong>Sourcing Office</strong></td>
<td>Chang’an, Donguan, China</td>
<td>Chang’an, Donguan, China</td>
<td>Chang’an, Donguan, China</td>
<td>Chang’an, Donguan, China</td>
</tr>
</tbody>
</table>
Eco-Friendly Packaging

- Glass J-Tubes
- Glass Jars
- Glass Concentrate Jar
- Tin Box with Sliding Lid
- Paper Boxes
- Bioplastic Boxes
## Packaging Materials

<table>
<thead>
<tr>
<th></th>
<th>Recyclability</th>
<th>Cost</th>
<th>Biodegradability</th>
<th>Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper</td>
<td><img src="image" alt="Recycle" /> <img src="image" alt="Recycle" /> <img src="image" alt="Recycle" /></td>
<td>$ $</td>
<td><img src="image" alt="Leaf" /> <img src="image" alt="Leaf" /> <img src="image" alt="Leaf" /></td>
<td><img src="image" alt="Wrench" /> <img src="image" alt="Wrench" /></td>
</tr>
<tr>
<td>Plastic</td>
<td><img src="image" alt="Recycle" /></td>
<td>$</td>
<td><img src="image" alt="Leaf" /></td>
<td><img src="image" alt="Wrench" /> <img src="image" alt="Wrench" /> <img src="image" alt="Wrench" /> <img src="image" alt="Wrench" /> <img src="image" alt="Wrench" /></td>
</tr>
<tr>
<td>Glass</td>
<td><img src="image" alt="Recycle" /> <img src="image" alt="Recycle" /></td>
<td>$ $ $</td>
<td><img src="image" alt="Leaf" /> <img src="image" alt="Leaf" /></td>
<td><img src="image" alt="Wrench" /></td>
</tr>
<tr>
<td>Metal</td>
<td><img src="image" alt="Recycle" /> <img src="image" alt="Recycle" /> <img src="image" alt="Recycle" /></td>
<td>$ $ $</td>
<td><img src="image" alt="Leaf" /></td>
<td><img src="image" alt="Wrench" /></td>
</tr>
<tr>
<td>Bioplastic</td>
<td><img src="image" alt="Recycle" /> *</td>
<td>$ $ $</td>
<td><img src="image" alt="Leaf" /> <img src="image" alt="Leaf" /></td>
<td><img src="image" alt="Wrench" /> <img src="image" alt="Wrench" /></td>
</tr>
</tbody>
</table>

* Bioplastics are currently difficult to recycle, but this will change over time.
# Paper Packaging

<table>
<thead>
<tr>
<th></th>
<th>Good</th>
<th>Better</th>
<th>Best</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of Paper</strong></td>
<td>Wood Pulp Based</td>
<td>Recycled Paper</td>
<td>Hemp Based</td>
</tr>
<tr>
<td><strong>Environmental Impact</strong></td>
<td>Cutting Trees, Operating Machines</td>
<td>Manufacturing &amp; Energy Intensive</td>
<td>Not Cutting Trees, More Efficient Land Use</td>
</tr>
<tr>
<td><strong>Renewable Cycle Duration</strong></td>
<td>Decades (Trees)</td>
<td>Immediate / Weeks (Production Time)</td>
<td>3 to 4 Months (Hemp Plants)</td>
</tr>
<tr>
<td><strong>Cost</strong></td>
<td>$</td>
<td>$$</td>
<td>$$$</td>
</tr>
</tbody>
</table>
Biodegradable Products Institute

• Biodegradable Products Institute
  https://www.bpiworld.org/

• Guidelines For The Labeling And Identification Of Compostable Products And Packaging

• **Biodegradation** is the degradation of the materials into environmentally acceptable products such as water, carbon dioxide, and biomass by the action of naturally available microorganisms under normal environmental conditions.
## Compostability & Biodegradability Standards

<table>
<thead>
<tr>
<th>Certification</th>
<th>Standards (USA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Compost</td>
<td><strong>ASTM D6400</strong> - Standard Specification for the Labeling of Plastics Designed to be Aerobically Composted in Municipal or Industrial Facilities*</td>
</tr>
</tbody>
</table>

* NOTE: At present there is no industrial grade compost facility in Alaska. The Anchorage community compost facility does not currently accept compostable containers.
Plastic Ocean Waste Solutions, LLC

- Designed a mobile Plastic Ocean Waste Recycling solution deployed in two 40-foot containers and can be moved from community to community to convert plastic waste into construction products
- Initial system will produce Recycled Plastic Lumber from 2, 4, and 5 recyclates, future systems will focus on 1 and 6
- EPA funded for both the design (2021) and the demonstration (2022-2023)
Recycling Collection Centers

Recyclable Materials from Marijuana Retailers

JKD Brands, LLC

Recyclables from our Operations

VALLEY COMMUNITY FOR RECYCLING SOLUTIONS
https://www.valleyrecyclingak.org/
9465 E Chanlyut Circle, Palmer, Alaska 99645
Tel: 1.907.745.5544

Plastics, Paper, Glass, Metals

Plastics:
Now – HDPE, LDPE & PP
Future – PETE, PS

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