RIBUS®

SupplySide Global 2026

BUSINESS & BREAKFAST

Expansion of Clean Label Excipients

Steve Peirce | Thursday, October 29th

As you walk the SSG Show Floor

GLP-1 and metabolic health

Women's hormonal health

Healthspan vs. lifespan

Protein, fiber and active nutrition

Mushrooms, creatine, NMN and NR

Mental health and cognition

Sustainability and certification

What connects them all?

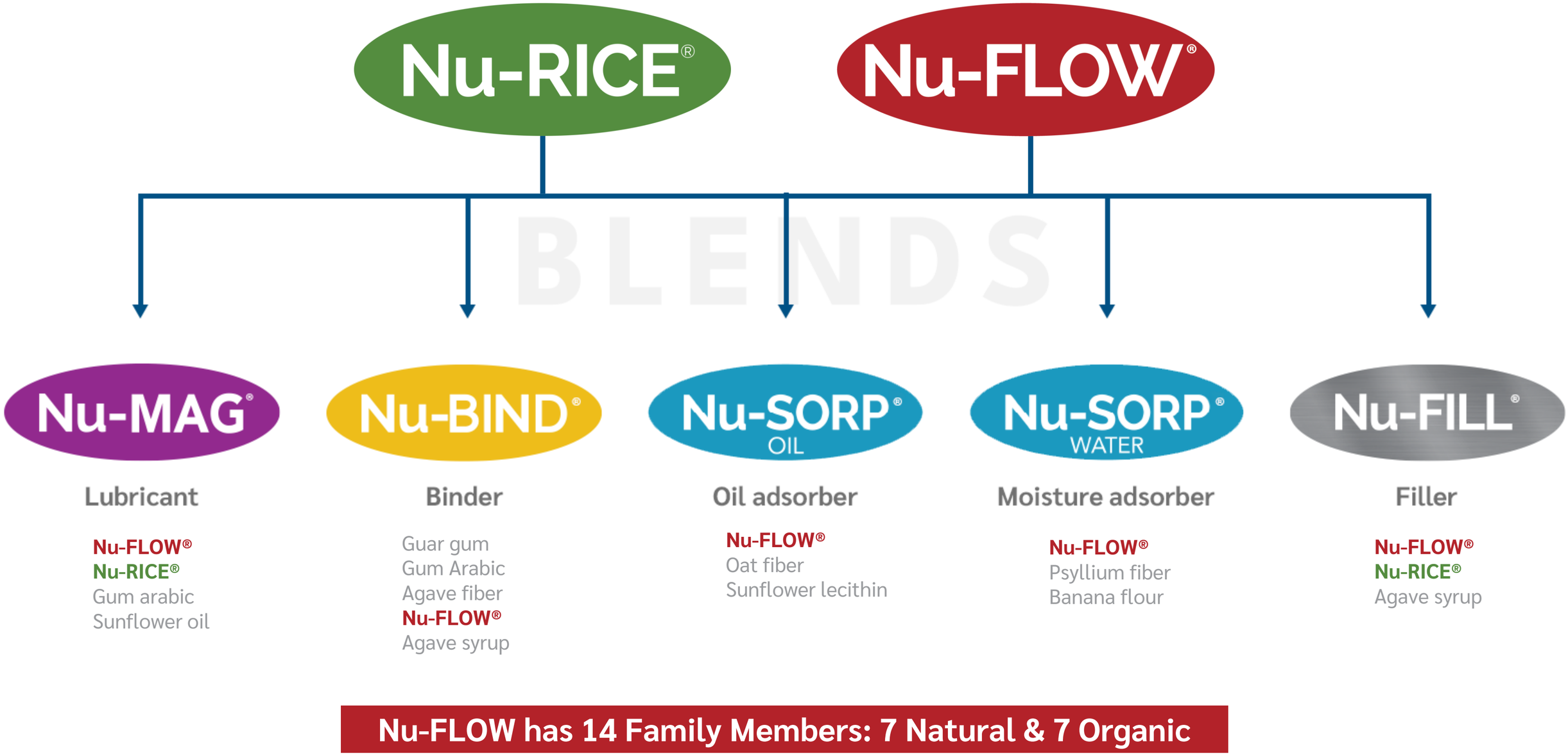
RIBUS®

Every Active Requires an Excipient.

MAKE IT CLEAN LABEL.



RIBUS®



Nu-FLOW has 14 Family Members: 7 Natural & 7 Organic

Challenges → Excipients → Guides

FLOW AGENTS

RIBUS, Inc. | Clean Label Flow Agent Guide

The Role of Clean Label Flow Agents

Solving Powder Production Problems —Without Synthetics

What a Flow Agent Actually Does

A flow agent is not "fixing" the ingredient — it is stabilizing the powder system, so it behaves predictably in equipment and delivery forms. When a powder fails (clumping, caking, bridging, or running unevenly), the cause is almost always one of five dominant physical failure modes.

The Five Powder Failure Modes

Hygroscopicity — CRITICAL
Ingredient pulls moisture from air -- clumping in hoppers, poor capsule fill consistency.
Ambient humidity causes agglomeration & hopper blockage

High Surface Energy — CRITICAL
Particles attract each other electrostatically -- bridging, poor blending, erratic flow.
Van der Waals forces cause electrostatic aggregation & fouling

Sugar Content — HIGH
Sugars recrystallize in humidity -- hard caking, loss of pourability, metering issues.
Moisture-driven crystal bridging disrupts processing consistency

Oil Content — HIGH
Free surface oils cause sticking -- equipment fouling, clumping, poor dispersion.
Lipid coatings increase wall adhesion & mass flow failures

Poor Particle Geometry — MODERATE
Irregular shapes interlock mechanically -- compaction in storage, sluggish tableting.
Irregular particle morphology creates arches in feed frames

This is why one flow agent does not work equally well across all ingredients.

Product	Solves	Key Advantage
Nu-FLOW	General flow / replaces SiO2	Clean label drop-in for silicon dioxide
Nu-SORP Oil	High oil content ingredients	2x oil adsorption vs. Nu-FLOW
Nu-SORP Water	Hygroscopic ingredients	2x moisture adsorption vs. Nu-FLOW
Nu-FILL	Low density / capsule fill weight	Adds density, lowers angle of repose vs. MCC

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LUBRICANTS

RIBUS, Inc. | Clean Label Lubricant Guide

The Role of Clean Label Lubricants

Solving Tablet and Capsule Production Problems—Without Synthetic Magnesium Stearate

What a Lubricant Actually Does

A lubricant is not changing the active ingredient — it is reducing friction at the interfaces of the tablet press and capsule encapsulator, so the powder system compresses, fills, releases, and ejects cleanly. Whether the delivery form is a compressed tablet or a dry-fill capsule, lubrication failures fall into five dominant modes.

The Five Lubrication Failure Modes

Sticking -- Tablet and Capsule — CRITICAL
Tablets: powder adheres to punch faces and die walls. Capsules: powder adheres to tamping pins or dosator bores causing surface defects, fill weight variation, line stoppages.

Picking and Surface Defects -- Tablet and Capsule — CRITICAL
Tablets: blend lifts off into engraved punch tips, losing logo or score line definition. Capsules: dosator nozzles foul, breaking slug integrity and causing rejects.

Capping and Lamination -- Tablet — HIGH
Top of tablet separates or splits into layers during ejection causing friability failures and downstream coating defects.

High Ejection / Slug Release Force -- Tablet and Capsule — HIGH
Tablets: excess die wall friction causes tooling wear, rejects, slower press speeds. Capsules: high slug release force causes fill weight drift and tamping pin wear.

Filming and Tooling Build-Up -- Tablet and Capsule — MODERATE
Gradual residue accumulation on punches, dies, tamping pins, or dosators causes progressive defects and more frequent line clean outs.

Tablets and capsules share the same root issue — friction at the tooling interface. The wrong lubricant — or too much of the right one — creates as many problems as it solves.

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BINDERS

RIBUS, Inc. | Clean Label Binder Guide

The Role of Clean Label Binders

Solving Powder Production Problems — Without Synthetics

Why a Binder Is Necessary

A binder creates and holds the inter particle bonds that give a tablet its physical integrity. Without sufficient binding, the compressive energy of the tablet press does not translate into durable bonds, tablets cap, laminate, or crumble under the stresses of coating, packaging, shipping, and consumer handling. With too much of the wrong binder, tablets become so hard they resist disintegration and compromise active bioavailability.

Binder selection is therefore a formulation-critical decision. It affects tablet integrity, dissolution performance, manufacturing efficiency, and label positioning.

Binders in capsules: standard dry-fill capsules don't require a binder for shell integrity, but binders become relevant for low-bulk-density botanicals, eliminating pre-compaction steps, mini-tablet fills, and matrix binders in controlled-release multi particulates.

Problems Tablet & Capsule Producers Face

Common manufacturing failures that point to a binder problem:

- **Capping & lamination —** the top of the tablet separates or splits horizontally during ejection or coating; usually caused by entrapped air, over-compression, or insufficient binder
- **Tablet hardness too low —** tablets fail crushing strength tests; the active itself does not bind under compression and the formulation needs binding support
- **Friability too high —** tablets chip or crumble in the bottle, from insufficient binder or compression force
- **Slow disintegration —** synthetic binders achieve hardness but extend disintegration time, slowing dissolution and bioavailability
- **Hardness variation across run —** binder must be uniformly distributed or producers see hardness or weight variation
- **Capsule under-fill / dose accuracy —** low-bulk-density botanicals don't fill the shell to the target dose; pre-compaction is costly and adds yield risk
- **Clean label gap —** PVP, HPC, HPMC, and gelatin all carry negative consumer perception in the natural or organic channel

How to Know You Need a Binder

Characterize the active before selecting a binder. The following active properties drive binder demand:

- **Compactability —** does the active itself bond under compression? Many botanicals, mineral chelates, and lipid actives do not.
- **Bulk density —** how much room is available in the target tablet weight or capsule volume for proper dose, lubricants or flow agents?
- **Moisture sensitivity —** does wet granulation pose a stability risk? If yes, you need a dry binder.
- **Thermal sensitivity —** are there temperature constraints? Probiotics, enzymes, and heat-labile actives demand cool processing.
- **Oil or wax content —** fatty acids, omega-3 powders, and fat-soluble extracts resist binding and may need elevated binder levels.
- **Certification requirements —** Organic or Natural consumers require the binder to be Clean Label.

Categories that usually require a binder: high-ratio botanical extracts (5:1, 10:1, 20:1), mineral chelates (calcium citrate, magnesium bisglycinate), probiotics (dry direct-compression only), and omega-3 / fat-soluble actives (hydrophobic surfaces resist binding).

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FILLERS

RIBUS, Inc. | Clean Label Filler Guide

The Role of a Clean Label Filler

Solving Volume and Weight Problems — Without Synthetics

WHAT IS A FILLER?

A filler, diluent or bulking agent, adds the volume and weight needed to bring a tablet or capsule to its target dose size. It is usually the largest excipient by weight in low-dose formulas.

WHY YOU NEED ONE

- Most active ingredients are too small to compress or encapsulate alone.
- Fillers deliver the bulk needed for accurate dosing at the recommended daily intake.
- They improve flow, content uniformity, and tablet/capsule weight consistency on the line.
- Right filler choice = fewer rejects, longer toolinglife, and a proper dose for your consumer.

SIGNS YOUR FORMULA NEEDS A FILLER

- Active dose is under ~200 mg per tablet, or capsule fill is under ~40%.
- Tablet would be too thin or capsule under-fills cause weight variation.
- Active has poor flow, poor compressibility, or static issues.
- Content uniformity testing trends out of spec.

COMMON FILLERS — COMMON DRAWBACKS

Common Filler	Drawback to Watch For
Microcrystalline Cellulose (MCC)	Synthetic label; not organic; can over-harden tablets on storage.
Lactose	Lactose intolerance; reacts with amine actives (Maillard browning); non-vegan.
Dicalcium Phosphate	Abrasive on tooling; alkaline pH can degrade acid-sensitive actives.
Wheat / Corn Starch	Hygroscopic; gluten labeling concern (wheat); lot variability.
Mannitol / Sorbitol	Higher cost; laxative effect at higher intakes.

Today's supplement consumer reads the "Other Ingredients" line. Synthetic, allergen-bearing, or animal-derived fillers undercut clean label, vegan, and organic positioning.

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• HIGH

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• MODERATE

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Application Guides

FLOW AGENTS

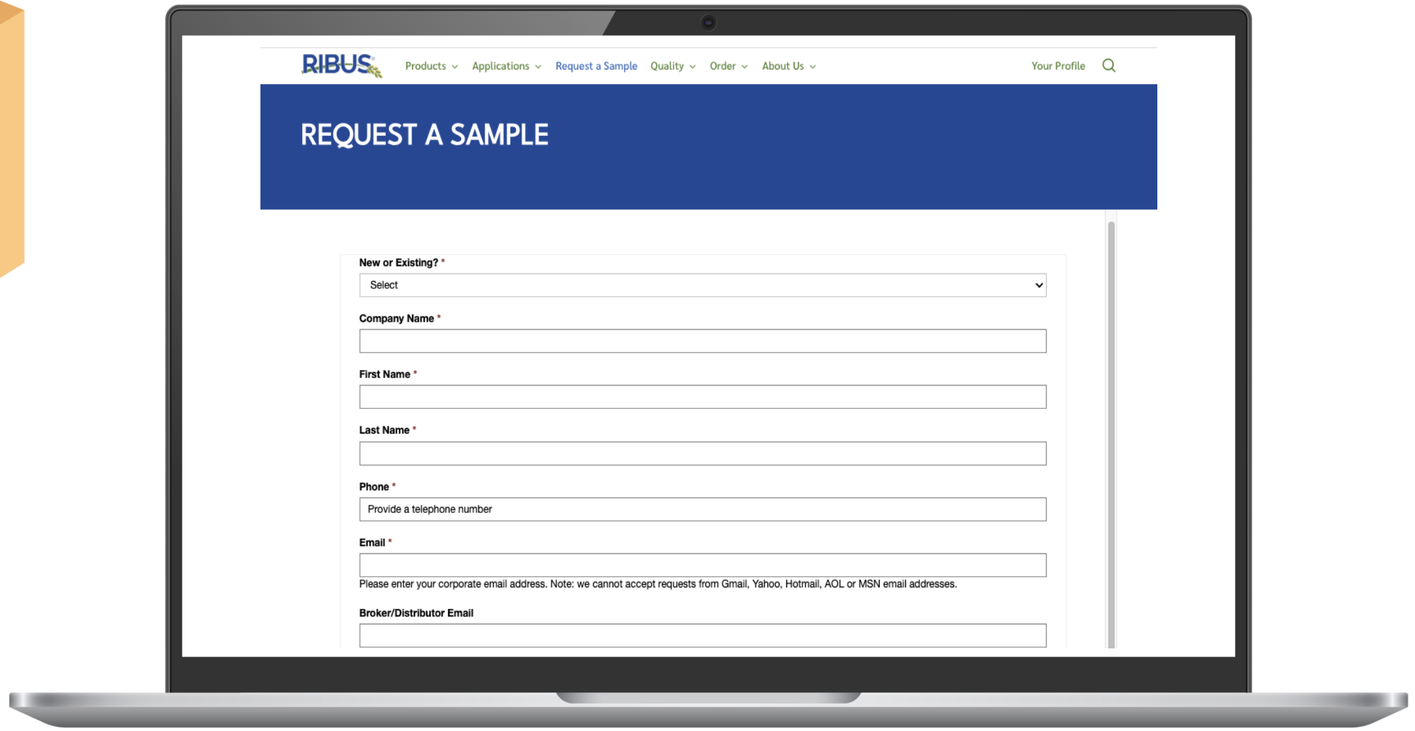
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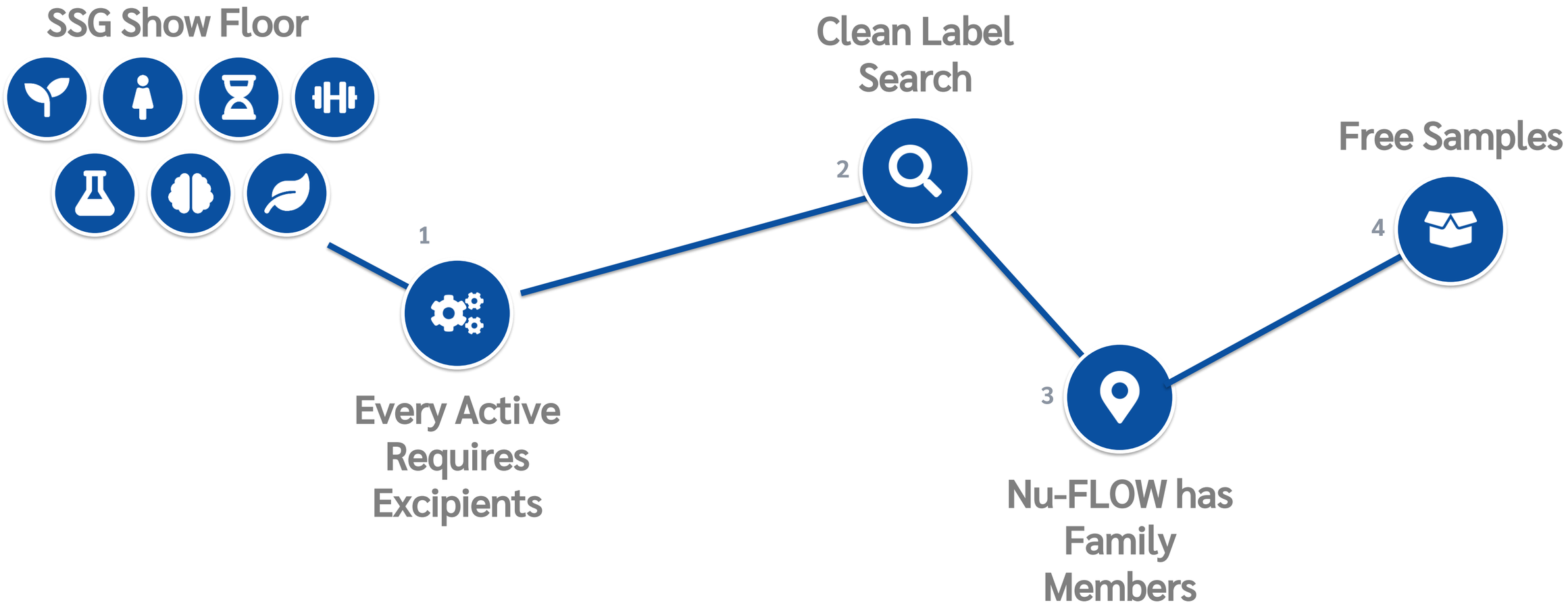
Free Samples Available





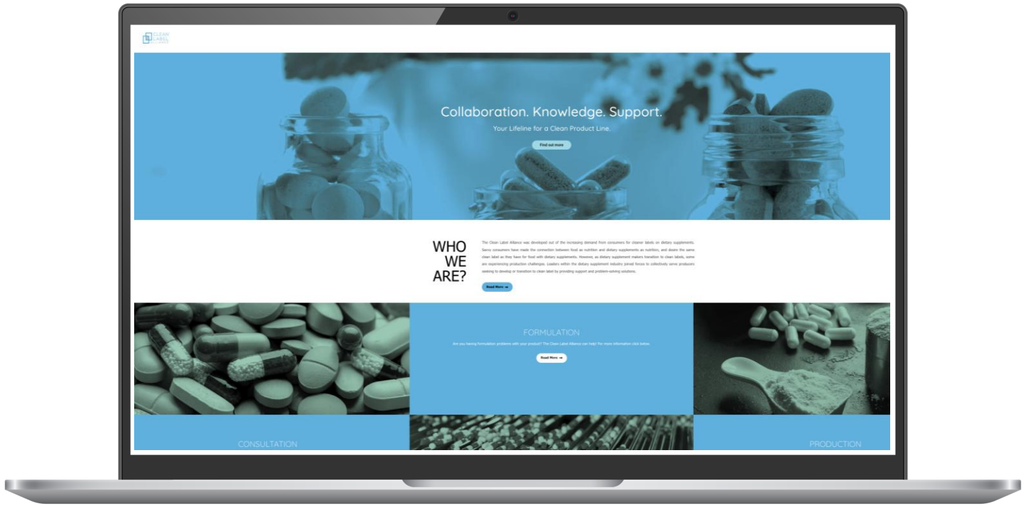
Samples are available in both organic and conventional.

Connect the dots



Industry helping industry

CLEAN LABEL ALLIANCE℠



RIBUS®

Booth #6553

BIOGRUND

Booth #2577

Capsugel
Lonza

Booth #6065

SYNTEGON
PROCESSING & PACKAGING

Booth #3731

RIBUS®
CERTIFIED CONTRACT MANUFACTURER PROGRAM

- Referrals
- Joint promotion
- Listed and linked
- New product preview





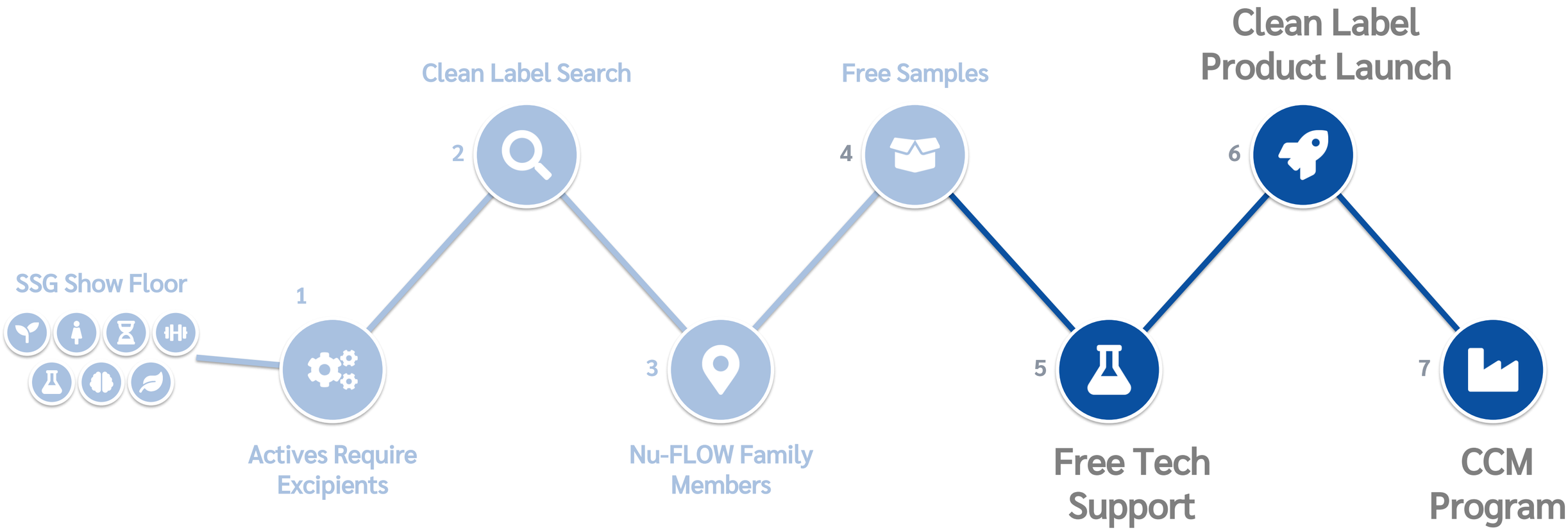
Learn more: ribus.com/contract-manufacturers

Newest CCM Members

Booth #7265

Booth #7113

Connect the dots



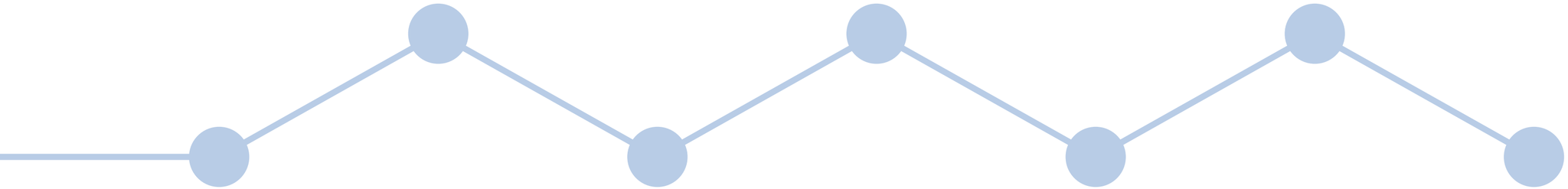
What's Nu at RIBUS?

30 Minute Tech-to-Tech Meetings

- Overview of excipients
- Identifying your current challenges (worksheet)
- Arrange samples – tech follow-up after testing

Recap

- Nu-FLOW® has 14 family members
- FREE tech support from the Clean Label Alliance
- The RIBUS CCM program
- Tech –to- Tech Video Calls



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