Custom Synthesis, LLC

SPECIALTY CHEMICAL MANUFACTURING · ANDERSON, SC

The chemistry you need, produced to scale.

Custom and toll manufacturing of high-purity esters, phosphate esters, carboxylates, sulfated alcohols, amides, emulsions, and specialty blends — from bench trials to tank-truck and rail volumes.

ISO 9001:2015 | RSPO CERTIFIED | KOSHER CERTIFIED



Capabilities & Product Overview

CustomSynthesis.net
1-800-768-3246 · Anderson, SC

01 A specialty plant engineered for purity and scale

Custom Synthesis manufactures a broad range of esters and specialty chemicals for personal care, lubricants, plastics, and industrial markets. Our plant is designed to deliver **high-purity, low-color esters** — our specialty — with the reactor and blending capacity to take a product from a first trial batch to full production.

High purity, low color
Dedicated esterification and finishing equipment built to meet tight quality specs.

Custom & toll manufacturing
Your formula or ours — reaction, emulsion, and blending under one roof.

Trials to truckloads
100-gallon pilot scale-up through bulk shipment by tank truck and on-site rail.

MARKETS WE SERVE

- Personal Care & Cosmetics
- Lubricants & Base Stocks
- Plasticizers & Plastics
- Oil Field
- Ink & Coatings
- Agriculture
- Metal Working & Corrosion Inhibitors
- Automotive

ISO 9001:2015
Quality management system, certified and audited.

RSPO Certified
Sustainable palm-derived raw material sourcing.

Kosher Certified
Under supervision of Organized Kashrus Laboratories.



AERIAL VIEW — THE CUSTOM SYNTHESIS FACILITY, ANDERSON, SOUTH CAROLINA

02 Reaction & emulsion chemistry

Eight core reaction platforms including pressure- and vacuum-capable reactors, emulsion and blending equipment, supporting a wide range of custom and catalog products.

01 Fatty Esters

A complete line of esters from many fatty acids and alcohols — for lubricants, metalworking, plasticizers, personal care, food additives, oil field, and inks.

02 Phosphate Esters

Acid esters via phosphoric anhydride and polyphosphoric acid routes; sodium and potassium salts ranging from 30–80% active.

03 Carboxylates

Alcohol reacted with sodium chloroacetate to yield a crypto-anionic surfactant that performs like its phosphate counterpart.

04 Sulfated Alcohols

Sulfation of a wide variety of alcohols via the sulfamic-acid route.

Major supplier — Sodium 2-Ethylhexanol Sulfate (Custom 8425, 40% solids)

05 High-Temperature Polymeric Esters

Made from mono- and poly-functional alcohols and acids. Hot-oil equipment capable of operating at temperatures up to 260 °C.

06 Amidations

A fatty acid reacted with a poly-functional amine to yield an amido-ester for a wide range of applications.

07 Alkylations

Alkylation reactions that attach alkyl groups to aromatic and other substrates — yielding alkylated intermediates and feedstocks for surfactants, detergents, and lubricant additives.

08 Kosher Esters

From Kosher Butyl Stearate to Kosher PEG Stearates, Palmitates, Myristates, Oleates, and Medium-Chain Triglycerides — manufactured under the supervision of Organized Kashrus Laboratories.

EMULSION CHEMISTRY

Highly viscous materials including ink additives, silicone emulsions requiring inversion, polyacrylamide preparations, and hot and cold blends across a wide range of applications.

BLENDING & FORMULATING

Custom-formulated products including corrosion inhibitors, fiber-finishing aids, cationic / nonionic / anionic lubricants, silicone and non-silicone emulsions, and coatings for polyethylene and films.

03 Reaction & blending capacity

A flexible fleet of reactors and mixing vessels — every reactor fitted with condenser, vacuum, and receiver — sized for everything from pilot trials to full production runs.

5	20K+ gal	13	260°C
REACTION VESSELS	REACTION CAPACITY	BLENDING VESSELS	HOT-OIL CAPABILITY

REACTORS

8,000 gal	Esterification reactor for high-purity esters. Steam & hot oil heated, cooled by a dedicated 500-ton cooling tower. Pressure tested to 100 psi.
7,200 gal	Hot-oil reactor, internal coil for steam/cooling, 100 psi. Condenser, vacuum, receiver.
3,000 gal	Hot-oil reactor, internal coils, 100 psi. Condenser, vacuum, receiver.
2,000 gal	Steam/cooling reactor with condenser, vacuum, receiver, and scrubber.
100 gal pilot	Hot-oil pilot-plant reactor, internal coil, 55 psi. For trials & scale-up.

All reactors are stainless steel construction, fitted for full vacuum, and rated to 100 psi (pilot 55 psi).

BLENDING & MIXING

6,600 gal ×4	Four jacketed stainless vessels, steam/cooling.
6,500 gal	Jacketed mixing vessel, steam/cooling.
5,500 gal	Jacketed mixing vessel, steam/cooling.
2,000–2,500	Two jacketed mixing vessels.
1,500 gal	Meyers mixer — variable-speed sweep + two high-shear blades for high-viscosity materials.
100–1,500	Range of smaller vessels including 100-gal units for customer trials & single-drum batches.
Flaker	Drum-style flaker, 2–12 drums/hour depending on material.

All blending equipment is stainless steel construction — ~45,000 gal total capacity across the fleet.



REACTOR & BLENDING FLOOR — NUMBERED PROCESS VESSELS

04 Ester product line

A representative selection of our C-SYN ester products by application. Kosher grades are available across many lines. Custom synthesis to your specification is our standard business.

PLASTICIZERS — PLASTICS & FILMS

C-SYN 2EH Benzoate	2-Ethylhexyl Benzoate
C-SYN Butyl Benzoate	Butyl Benzoate
C-SYN 25 Benzoate	C12-14 Benzoate
C-SYN DBM	Dibutyl Maleate
C-SYN DTDA	Di-Tridecyl Adipate
C-SYN DOA / DIDA / DIOA	Di-Octyl / Di-Isodecyl Adipates

LUBRICANTS & BASE STOCKS — INDUSTRIAL

C-SYN NBS	Butyl Stearate
C-SYN Butyl Oleate	Butyl Oleate
C-SYN Flex 102 / 540	2-EH & Neopentyl Dimerate
C-SYN Flex 212	TMP Tri-Isostearate
C-SYN TMP-Trioleate	TMP Trioleate
C-SYN Fat 9012	Butyl Tallate

PERSONAL CARE — COSMETICS

C-SYN EHP	2-Ethylhexyl Palmitate
C-SYN EHS	2-Ethylhexyl Stearate
C-SYN Octyl Stearate	Octyl Stearate
C-SYN BYM	Butyl Myristate
C-SYN MCT	Caprylic/Capric Triglyceride
C-SYN 2156	Caprylate/Caprate Triglyceride

SURFACTANTS & PEG ESTERS — EMULSIFIERS

Custom 8425	Sodium 2-EH Sulfate (40%)
C-SYN PEG 400 MO / DO	PEG 400 Mono/Di-Oleate
C-SYN PEG 600 DC	PEG 600 Di-Cocoate
C-SYN Ester 1355 / 2355	Polyol Di-Tallate
C-SYN EH321	2-EH Acid Phosphate

KOSHER LINE — OK CERTIFIED

C-SYN KBS	Kosher Butyl Stearate
C-SYN KBP	Kosher Butyl Palmitate
C-SYN BYM-K	Kosher Butyl Myristate
C-SYN MCT Kosher	Kosher Capric Triglyceride
C-SYN PEG 400 MO-K / DO-K	Kosher PEG Oleates

STABILIZERS & SPECIALTY — PERFORMANCE

C-SYN Ester 90	Poly-12-Hydroxystearate
C-SYN D-340	Poly-Ricinoleate
C-SYN TMP-Tricocoate	TMP Tricocoate
C-SYN Tridecyl Stearate	Tridecyl Stearate
C-SYN BES	Butoxyethyl Stearate

Don't see your ester? **If it can be esterified, we can likely make it.** Talk to us about custom synthesis, private grades, and Kosher equivalents.

SPECIALTY & COMMODITY ESTERS — ESTERS AVAILABLE

A wide range of esters are available using fatty acids and a variety of alcohols, including the types listed below. Specific product development can be performed to meet your custom manufacturing needs.

- **Adipates**
- **Azelates**
- **Benzoates**
- **Maleates**
- **Caprylates / Caprates**
- **Cocoates**
- **Laurates**
- **Myristates**
- **Oleates**
- **Palmitates**
- **Ricinoleates**
- **Sebacates**
- **Stearates**
- **Succinates**
- **Tallates**
- **Trimellitates**



FROM BENCH TO BULK

Trials to truckloads — and rail cars.

01 Pilot
100-gallon hot oil pilot reactor proves your chemistry.

02 Trial
Single-drum batches in dedicated trial vessels.

03 Production
Scale into 2,000–8,000-gal reactors.

04 Ship
Drums, totes, tank trucks & on-site rail.

Custom Synthesis, LLC

Let's make your next batch.

WEB	CustomSynthesis.net
PHONE	(864) 261-8146
TOLL FREE	1-800-768-3246
FAX	(864) 261-9210

PLANT & OFFICE
1704 Denver Road
Anderson, SC 29625

MAILING
P.O. Box 5254
Anderson, SC 29623

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