



VFT

MicroFluidics for Industrial Processing
Presented to 2026 Industrial Process EmeRging Technologies

Visionary Fiber Technologies
February 10, 2026

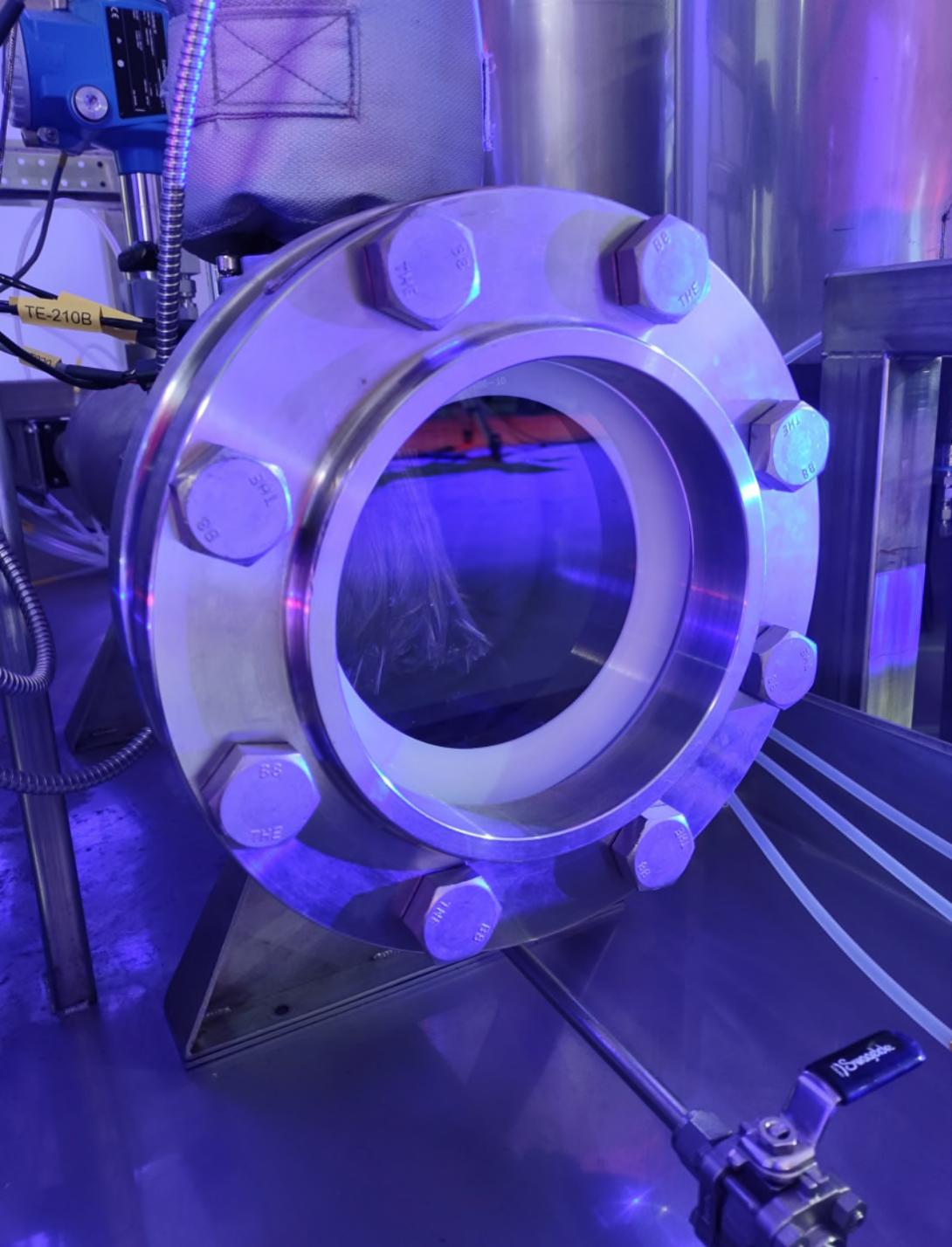
Dr. Scott Kohl, CTO



About VFT

Visionary Fiber Technologies, Inc. (“VFT”) commercializes its proprietary fiber reactor micro channel technology to enhance and improve production environments by increasing the efficiency of refining operations utilizing single-phase and two-phase chemistry.

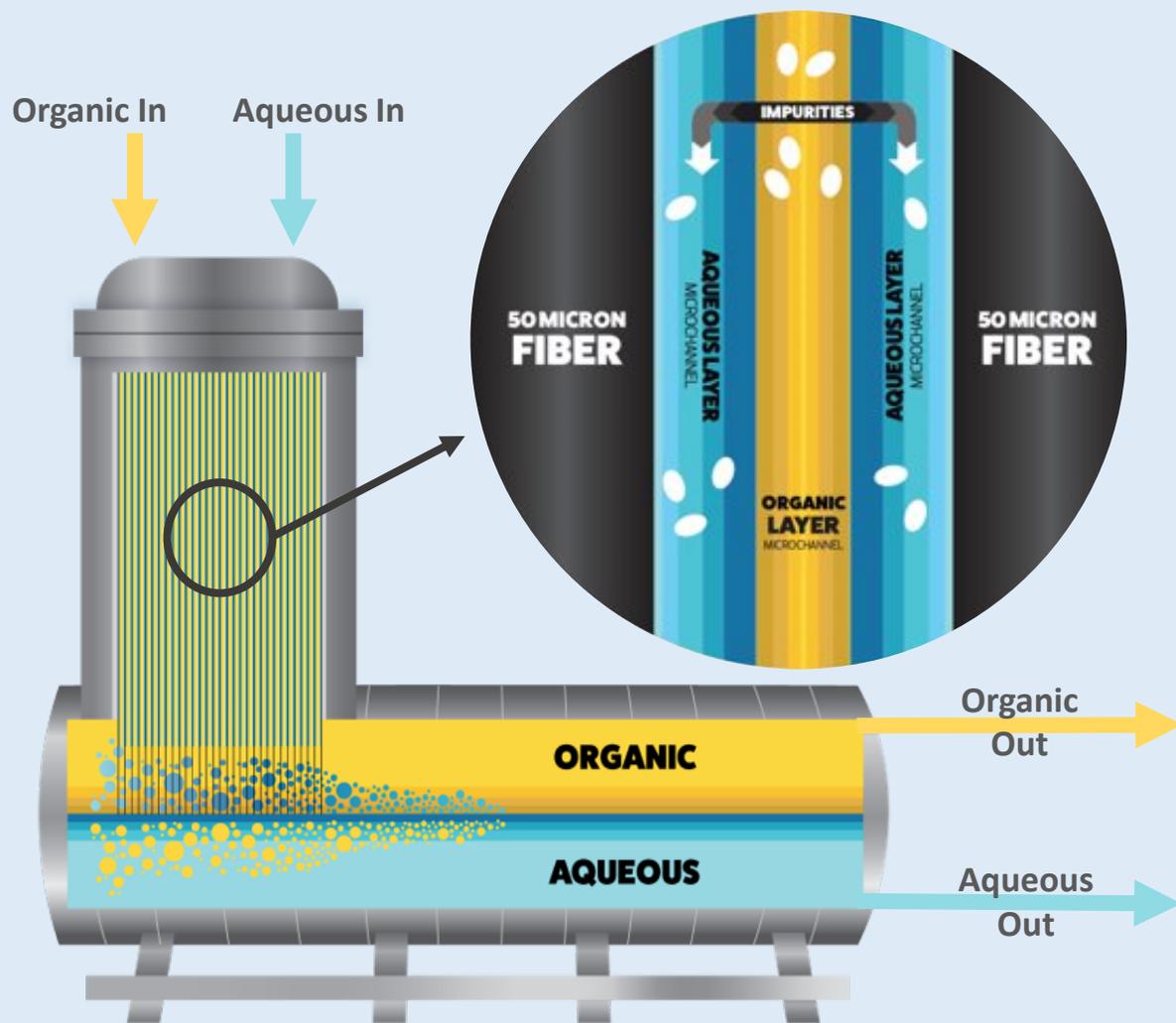
- VFT’s technology allows chemistry and separation of reaction products to proceed simultaneously with a fraction of energy consumption thus increasing throughput and reducing processing costs, **often reducing production/input costs by > 50%**.
- VFT provides immediate value to its end-users by improving their bottom lines with attractive return on investment periods. **Existing commercial applications include edible oils, renewable fuels, and pharmaceuticals** while holding patents based in prior development trial work in other applications such as metal/rare earth element extractions.



Application for Massive MicroFluidics

1. Water washing and neutralization of oils
2. Rehabilitation of damaged food oils (CCB)
3. Immobilization platform for enzymatic processing

Microfluidic Array with Gravity Separator



- Microchannel continuous bi-phasic flow
- High surface area for rapid diffusion
- Minimal emulsion
- Small footprint
- No moving parts, resulting minimized energy consumption, maintenance and machinery complexity
- Tunable parameters, due to adjustable:
 - Monofilament material
 - Monofilament density
 - Monofilament surface properties
 - Butter + aqueous distributor
 - Flow rate per cross section area
 - Solvent to butter ratio
 - Organic vs aqueous residence time

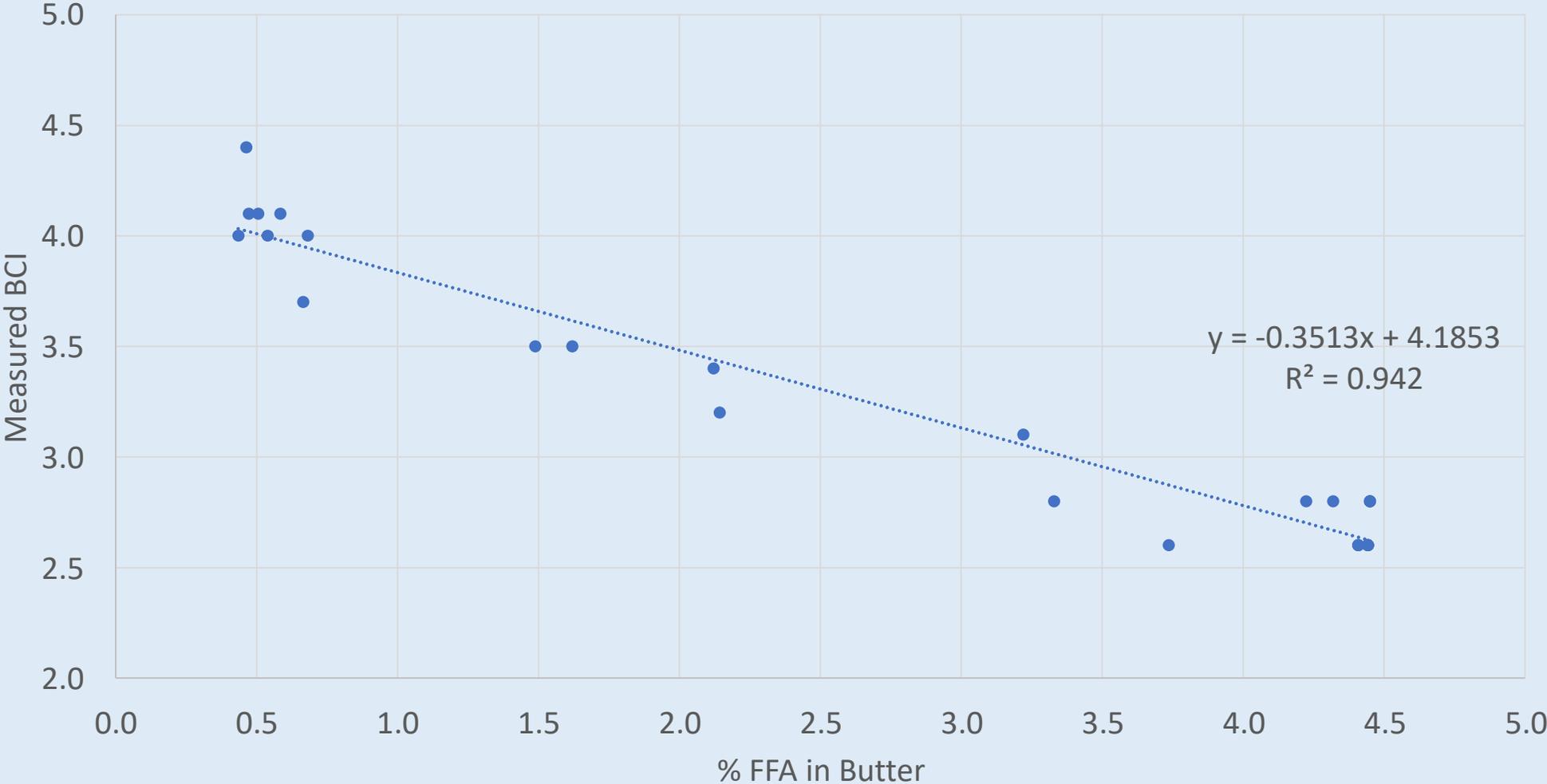
Water Wash Contaminated Oil

	Crude 1	1 pass	2 pass	Crude 2	1 pass	2 pass	Crude 3	1 pass	2 pass
D7536, Chloride(XRF)	11.5	4.7	4.5	28.2	4.2	3.0	13.6	7.1	4.6
D5708M (Calcium)	2.2	0.0	0.0	4.1	0.0	0.0	0.1	0.7	0.0
D5708M (Magnesium)	83.0	0.1	0.0	127.9	0.7	0.0	10.8	1.8	0.2
D5708M (Sodium)	18.8	0.0	0.0	32.6	0.6	0.3	16.5	3.8	1.1
D5708M (Potassium)	156.6	1.4	0.4	233.9	0.6	0.4	85.6	11.9	5.0
D5708M (Phosphorous)	339.0	8.6	2.9	669.1	36.6	3.2	50.7	9.1	2.3
D5708M (Nickel)	1.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D5708M (Vanadium)	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D5708M (Silicon)	43.5	5.1	0.3	78.2	5.3	3.4	3.7	0.7	0.3
D5708M (Iron)	5.3	0.3	0.0	10.1	0.6	0.2	0.1	0.0	0.0
D5708M (Copper)	0.3	0.3	0.0	0.1	0.0	0.0	0.0	0.3	0.0
D5708M (Zinc)	1.6	0.2	0.0	0.4	0.0	0.0	0.4	0.0	0.0
Total Metals	652.1	16.6	3.6	1156.4	44.4	10.7	167.9	28.3	8.9
% Removal		97.5%	99.4%		96.2%	99.1%		83.1%	94.7%

BCI vs Fractional Neutralization



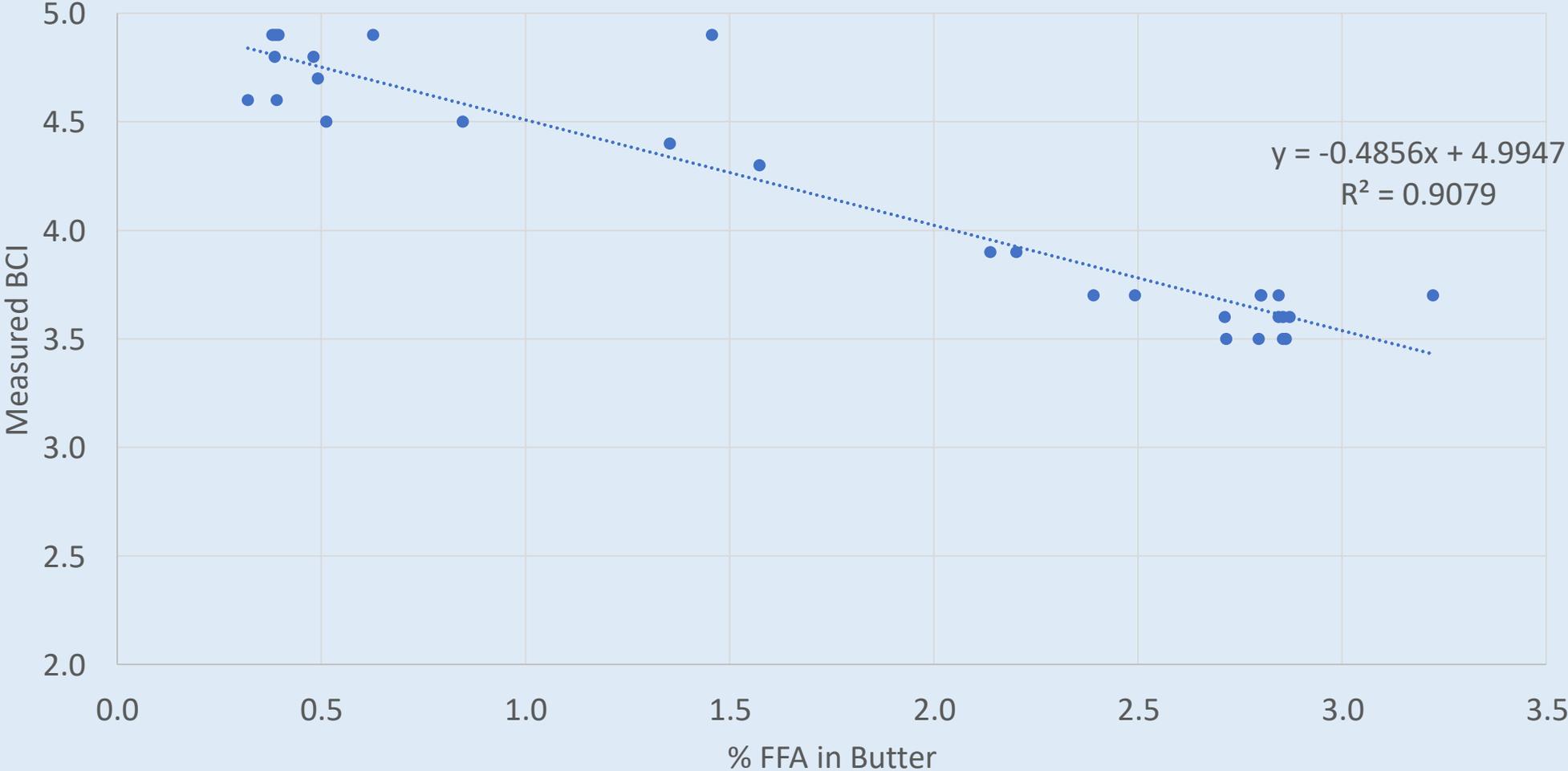
BCI vs %FFA after neutralization Lot 1



BCI vs Fractional Neutralization



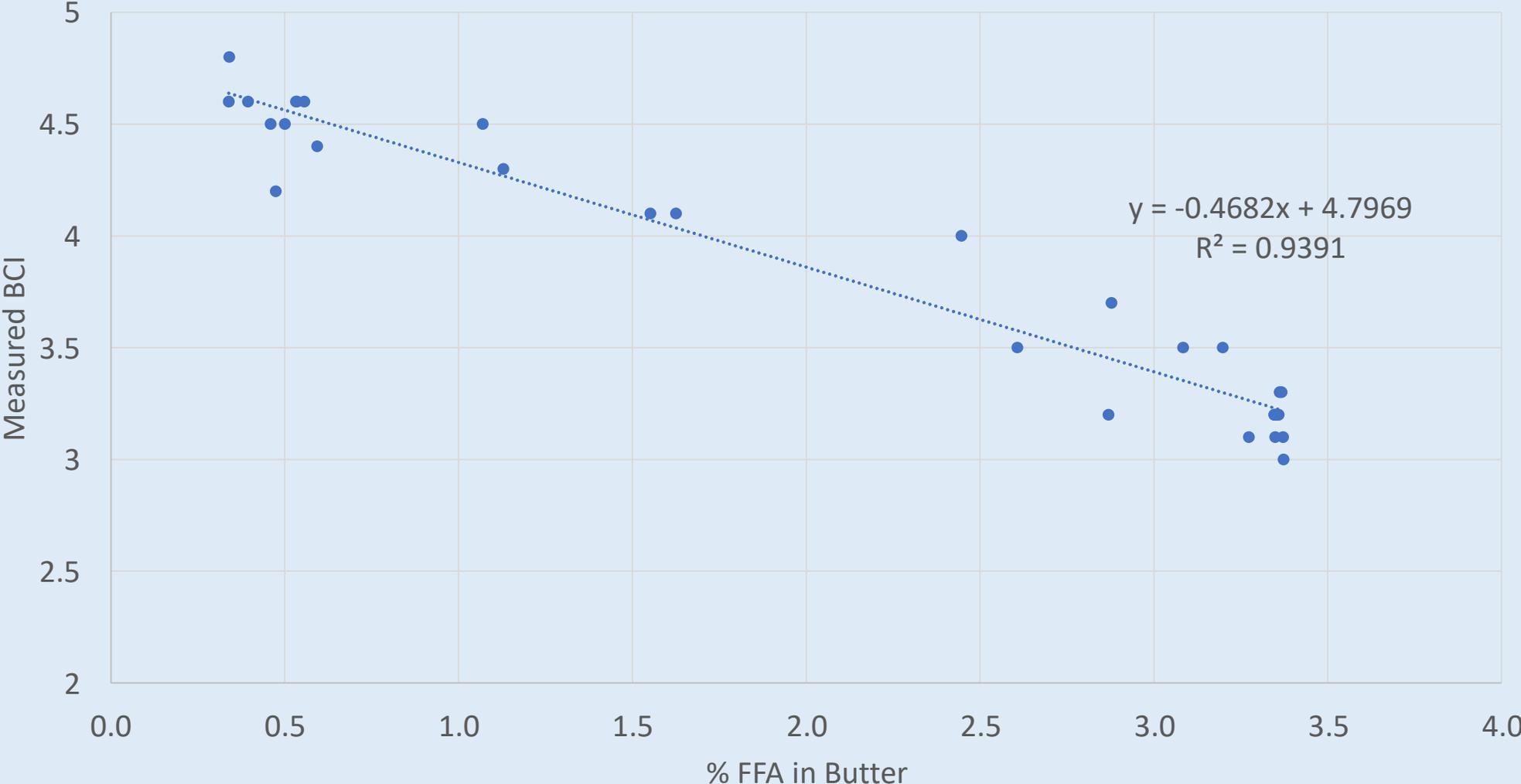
BCI vs %FFA after neutralization Lot 2



BCI vs Fractional Neutralization

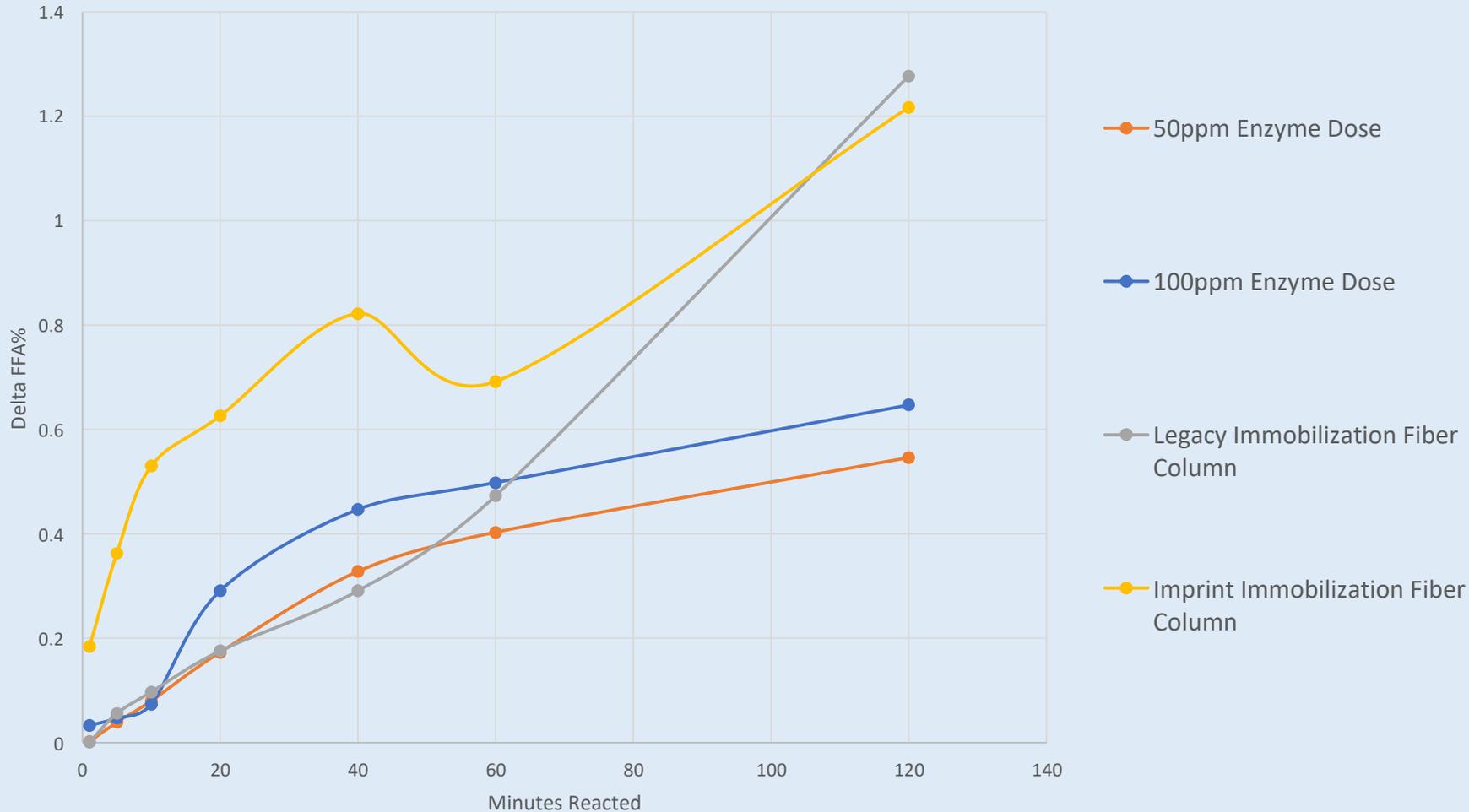


BCI vs %FFA after neutralization Lot 3



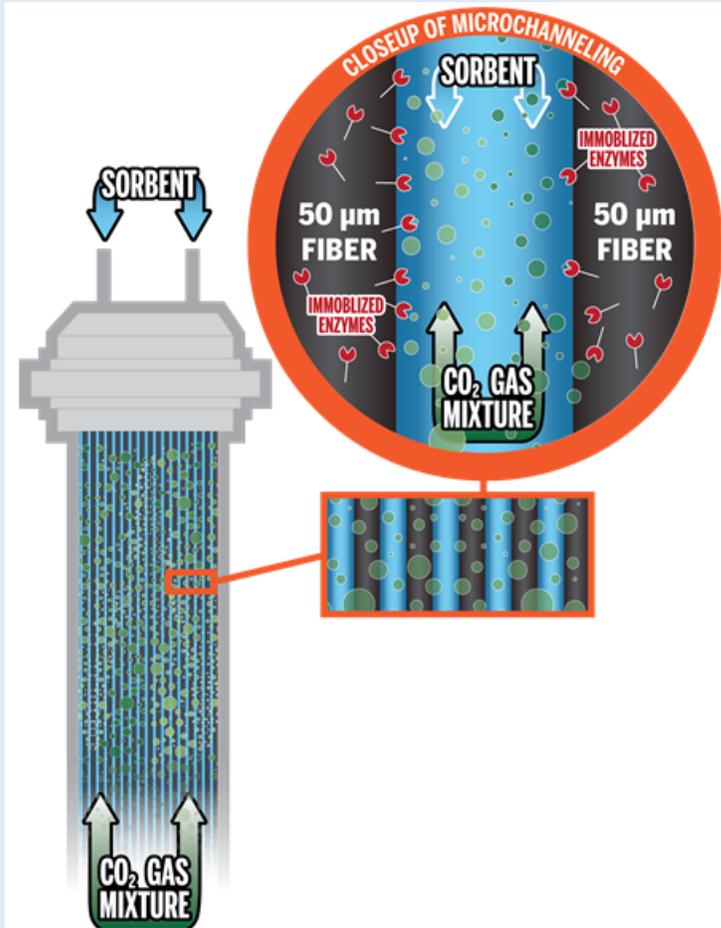
Enzyme Immobilization Phospholipase

Free Stir v. Legacy and Imprint Column 50um Crimped Steel



- Crude soybean oil containing 674ppm phosphorous was held in two different immobilized phospholipase PLA1 fiber columns prepared with different immobilization methods, Legacy and Imprint.
- The change in FFA% was tracked and compared with stirred free enzyme reactions containing either 50ppm or 100ppm free PLA1 phospholipase enzyme.

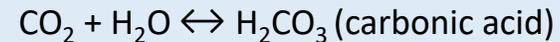
Carbonic Anhydrase Enzyme



A 15% CO₂ balance Air gas mixture was flowed up a Fiber Column containing 42% packing 50um fiber while a 50mM K₂CO₃ solution was recirculated in the column.

The pH decrease in the solution during the first 100 seconds, was compared for a column with no added enzyme, the same column containing free bovine carbonic anhydrase enzyme (2.1mg enzyme) and a column with the same dimensions and packing having an immobilized bovine carbonic anhydrase enzyme (estimated loading 1.23 mg enzyme)

The rate of change in terms of pH units per second for the three conditions are in the table below.



No Enzyme (pH/sec)	Free Enzyme (pH/sec)	Immobilized Enzyme (pH/sec)
-0.00283	-0.00428	-0.00411



Contact for Inquiry
Kevin Cate, Director of Sales
kcate@visionaryfiber.com