



## INTEXIVE

### Foundation

- 2019

### Employees

- 5

### Branches

- Cairo
- Istanbul

### Key materials

- Date Palm Fibers

### Key products

- PalmFil Chopped
- PalmFil Roving/ Yarn
- PalmFil Nonwoven
- PalmFil Woven
- PalmFil-PP Composites

### Contact

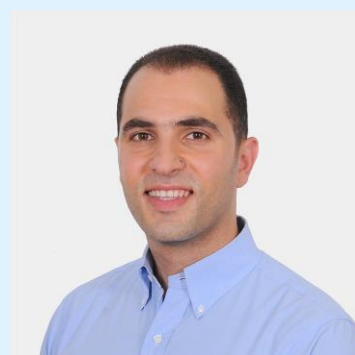
#### INTEXIVE

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[www.palmfil.com](http://www.palmfil.com)

### Contact person



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# inTEXive

Innovative Textiles and Composites



# PalmFil

## Company

**Intexive** is a provider of innovative textiles and composites solutions, established in January 2019 as a limited partnership consulting office. Intexive team has a combined experience of more than 50 years in fiber science, textiles technology and composites engineering. Our team represents the entire spectrum of the textiles and composites field, as they come from academia, research institutes and the industry.

We provide tailored and custom solutions in the following areas;

- Professional education programs
- Technical hands-on training programs
- Research and development projects
- New product development projects
- Technical consulting contracts

## Products

**PalmFil** is the world's first textile fibers and reinforcements extracted from the byproducts of pruning of date palms, such as the frond and fruit stalks. It creates value out of the large quantities of underutilized byproducts of date palms, which are otherwise open field burned. It also expands the palette of natural fibers and increases the biodiversity of fiber crops. Resulting in larger, more sustainable, and economical supply, which supports and encourages the industrial shift back to natural fibers.

### Textile Forms

PalmFil is very versatile and can be processed into many textile forms, including, long fiber tows, chopped fibers, spun yarns/ roving, nonwoven mats, woven fabrics, unidirectional tapes, pre-impregnated, comingled and finely milled fibers.





## Features and Benefits

### Sustainable and Biodegradable

PalmFil is obtained from renewable bioresources and it does not cause deforestation or compete with food production. It is 100% biodegradable and compostable, and has the ability to naturally degrade into its basic constituents and return back into the environment. It is a native cellulose, unlike regenerated cellulose that has issues with solvent recovery. PalmFil is carbon dioxide neutral and it preserves the local farming cultures and technical heritage.

### Abundant

Date palm is the main element of flora in the MENA region, with very high populations in Saudi Arabia, Iran, UAE, Iraq, Egypt and Algeria. Their estimated global population is 140 mil palms, generating 4.8 mil tons/year byproducts of pruning. The estimated fiber availability from those byproducts is 1.3 million tons/year, ranking third after cotton and jute. Palm pruning is performed year round, hence consistent supply with no seasonality issues

### Economical

Palmfil is obtained from palm byproducts, and do not require extra investment in water, fertilizer, pesticide or land. Those byproducts are often regarded as agriculture waste, with zero price in field. The valorization of these byproducts can provide extra source of income to palm growers, and can generate thousands of decent jobs. In addition to, creating entire value chain within rural communities.

### High Performance

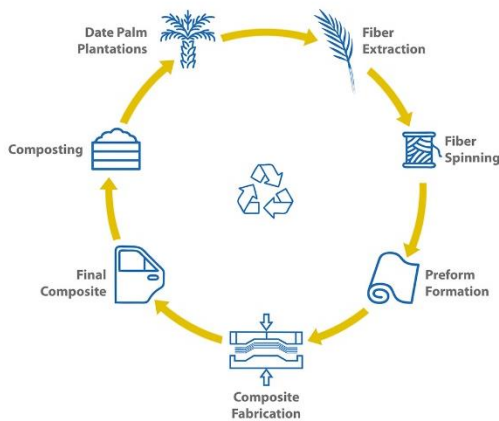
PalmFil specific tensile strength is 5 times higher than structural steel, and equal to those of flax, hemp and sisal. Its vibration damping and acoustical insulation is higher than those of glass and carbon and with thermal insulation higher than carbon. PalmFil has cellulose purity up to 70% and thermal stability up to 226 °C.

### Light Weight & Safe

PalmFil is 50% lighter than glass fiber, and 8% lighter than flax and hemp. It is safe for working health and does not require special personal protective equipment while handling. It also does not erode machine parts and production tools.

### Compatible

PalmFil has protruding side fibrils that create mechanical interlocks in a composite matrix. It can be easily blended with other long fibers such as flax, sisal, and abaca, or it could be chopped and blended with hemp, kenaf, and jute. PalmFil is compatible with existing spinning and weaving technologies of hard vegetable fibers.



Fiber	Physical Properties			Chemical Properties			Mechanical Properties		
	Density [gm/cm <sup>3</sup> ]	Diameter [µm]	Length [mm]	Cellulose [wt.%]	Hemicellulose [wt.%]	Lignin [wt.%]	Tensile Strength [MPa]	Young's modulus [GPa]	Elongation [%]
PalmFil	1.32	239	1,000	69.3	15.4	15.3	452	21	2.15
Sisal	1.33	8 – 200	900	47.6 – 78	10 – 17.8	8 – 14	100 – 800	9.4 – 28	2 - 3
Jute	1.46	25 – 200	1.5 – 120	61 – 75.5	13.6 – 20.4	5 – 13	200 – 800	10 – 55	1.8
Flax	1.4	40 – 600	5 – 900	70 – 75.2	8.6 – 20.6	2.2 – 5	345 – 900	27 – 80	1.2 - 1.6
Hemp	1.48	10 – 500	5 – 55	70 – 75.1	2 – 22.4	3.5 – 8	300 - 800	30 – 70	1.6