

# DuPont™ Kevlar® AP

FOR FIBER OPTIC CABLES

Build leaner, more robust, higher value cables.



For decades, DuPont™ Kevlar® has been considered the premier reinforcing fiber for indoor and outdoor fiber optic cables due to its excellent modulus, strength, fatigue performance, chemical and flame resistance, and ability to withstand high temperatures. Now, the latest innovation from DuPont—the DuPont™ Kevlar® Advanced Performance (AP) product family—offers even more advantages, including enhanced performance, improved cost effectiveness and increased design flexibility to build leaner, more robust, higher value cables.

With the introduction of DuPont™ Kevlar® K29 AP and Kevlar® K49 AP yarns, DuPont has provided the fiber optic cable industry with better-performing, more cost-effective products and improved flexibility in cable design and manufacturing, mechanical properties and coverage of the optic fiber.

### Less material, better performance with DuPont™ Kevlar® K29 AP

The increased tenacity and tensile modulus of DuPont™ Kevlar® K29 AP compared to original DuPont™ Kevlar® K29 translates into higher load performance for the cables. That means less material is needed in cable designs to match current cable performance in installation and daily operation.

For example, in premise cable tests, DuPont™ Kevlar® K29 AP 600 denier yarn has 15% more tenacity and 28% more tensile modulus compared to DuPont™ Kevlar® K29 1000 denier yarn, resulting in lower cable strain and higher cable load—with material savings that can exceed 10%.

Tests have also shown that a cable reinforced with DuPont™ Kevlar® K29 AP vs. one reinforced with four ends of DuPont™ Kevlar® K29 has even lower strain at the same loads—even though the amount of DuPont™ Kevlar® yarn is nearly 10% less. Thus, designers can use stress-strain curves to optimize cable designs to help meet specific short-term, long-term or overall performance criteria.

### Tensile properties of DuPont™ Kevlar® K29 and DuPont™ Kevlar® K29 AP

Product	Tenacity	Modulus	Elongation
DuPont™ Kevlar® K29 1000 denier yarn	23 gpd	600 gpd	3.5 %
DuPont™ Kevlar® K29 AP 600 denier yarn	26 gpd	770 gpd	3.2 %



DuPont™ Kevlar® AP is currently available for use in premise and outdoor/ADSS fiber optic cables.



Kevlar®

### Improved coverage of the optic fiber

For low fiber count premise cables, DuPont™ Kevlar® K29 AP 600 denier yarns provide crush resistance and cushion protection for the optic fiber. Additionally, the DuPont™ Kevlar® strength members keep the tight buffered fiber separated from the cable jacket to prevent sticking. Use of DuPont™ Kevlar® K29 AP yarn provides uniform and complete coverage of the tightly buffered optic fiber.

For example, DuPont™ Kevlar® K29 AP 600 denier yarn provides more uniform coverage of the optic fiber than DuPont™ Kevlar® K29 1000 denier yarn. Uniform coverage around the fiber makes cable production more efficient and results in more precise control of the jacket.

### More compact or higher-performance ADSS cables with DuPont™ Kevlar® K49 AP

The patented technology behind heavy denier DuPont™ Kevlar® K49 AP reinforcement yarns helps provide cable designers with the flexibility to develop either more compact or higher-performance cables with high reliability.

Suitable for outdoor/ADSS fiber optic cables, DuPont™ Kevlar® K49 AP is designed to help meet the broader installation demands of heavier loads, longer spans and extreme weather.

Reinforcement with DuPont™ Kevlar® K49 AP increases the load-bearing capacity of the cables for the same wave guide strain.

With DuPont™ Kevlar® K49 AP, manufacturers of fiber optic cables have the flexibility to help develop longer-span, more robust cables with the same amount of para-aramid strength members or modify the design of existing cables to achieve material savings of 10% to 20%, depending on the cable design.

### Innovation by DuPont

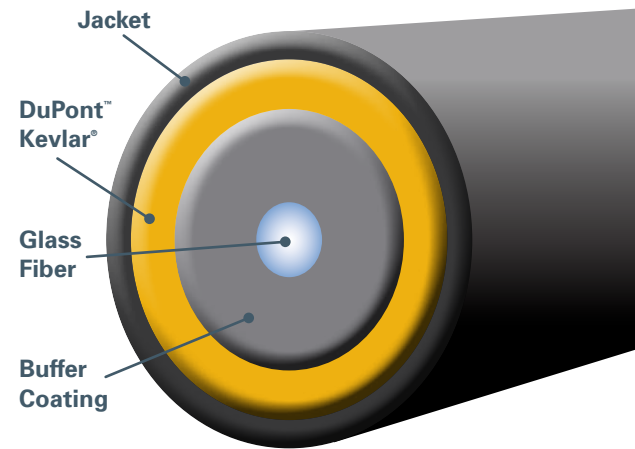
The DuPont™ Kevlar® AP product family represents a significant advancement in technology for fiber optic cables. Currently, DuPont™ Kevlar® K29 AP 600 denier and DuPont™ Kevlar® K49 AP in multiples of 2840 deniers are available for use in a wide range of high-strength applications. More offerings will be introduced in the near future.

### For more information

Learn how DuPont™ Kevlar® AP can help you reduce cost, improve performance and produce higher value fiber optic cables by calling 1.800.931.3456 or visiting [kevlrap.dupont.com](http://kevlrap.dupont.com)

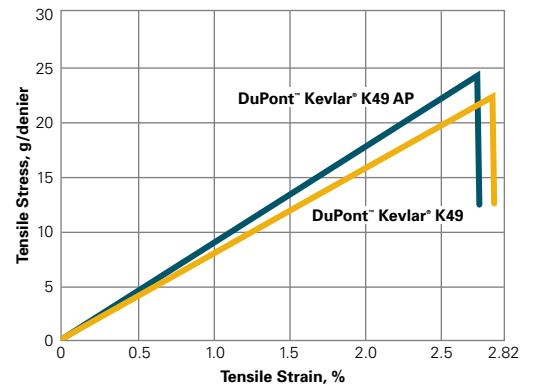
### Product safety information is available upon request

*This information corresponds to our current knowledge on the subject. It is offered solely to provide possible suggestions for your own experimentations. It is not intended, however, to substitute for any testing you may need to conduct to determine for yourself the suitability of our products for your particular purposes. This information may be subject to revision as new knowledge and experience become available. Since we cannot anticipate all variations in actual end-use conditions, DUPONT MAKES NO WARRANTIES AND ASSUMES NO LIABILITY IN CONNECTION WITH ANY USE OF THIS INFORMATION. Nothing in this publication is to be considered as a license to operate under or a recommendation to infringe any trademark or patent right.*



Cross-sectional view of a single fiber optical cable shows the tight buffered fiber completely covered by DuPont™ Kevlar® K29 AP 600 denier yarn.

### Increased load-bearing capacity of DuPont™ Kevlar® K49 AP vs. DuPont™ Kevlar® K49



### EXPLANATION OF GRAPH

This graph illustrates the improvement in both strength and modulus of DuPont™ Kevlar® K49 AP vs. DuPont™ Kevlar® K49. This graph is for products twisted to a twist multiplier of 1.1.



The miracles of science™

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