DOVERNOX D-9411T

A high performance phosphite blend with excellent cost/performance as a polymer stabilizer

Dovernox D-9411T is a one to one blend of **Doverphos S-9228T** and **Doverphos S-480**. It is offered by Dover Chemical Corporation to be used in various polymer formulations as an excellent cost/performance processing stabilizer.

Typical Properties

Property	Typical Result
Appearance	White/off white free-flowing granular
%P	6
Acid Number, mgKOH/g	<1
Specific Gravity, 25°C	1.2
Melting Point, °C	180 - 230

Dovernox D-9411T has a number of advantages over some high performance phosphites:

- Better hydrolytic stability in the polymer than other high performance phosphites
- Improved color control over standard phosphites
- Broad application temperature range.
- Excellent for high temperature processing
- Excellent cost/performance
- Global regulatory clearance for indirect food contact

The utility of **Dovernox D-9411T** can be seen from the data below that compares performance in stabilizing polypropylene during multi extrusions.

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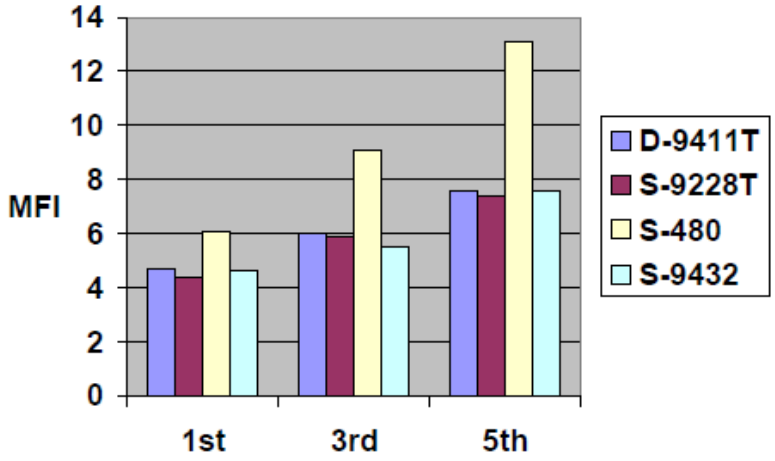
Figure 1 shows performance comparison of the **Dovernox D-9411T** to its blend components, **Doverphos S-9228T** and **Doverphos S-480** along with another high performance phosphite **Doverphos S-9432**. All were evaluated at 500ppm in a homo-polypropylene by multiple pass extrusion at 260°C. The base polypropylene contained 500ppm **Dovernox 10** and 500ppm calcium stearate. As can be seen in Figure 1 and Figure 2, the use of **Dovernox D-9411T** yields almost equal performance to the high performance phosphites **Doverphos S-9228T** and **Doverphos S-9432**. Both the color stability and the melt flow stability for the **Dovernox D-9411T** are significantly better than the general purpose phosphite **Doverphos S-480**.

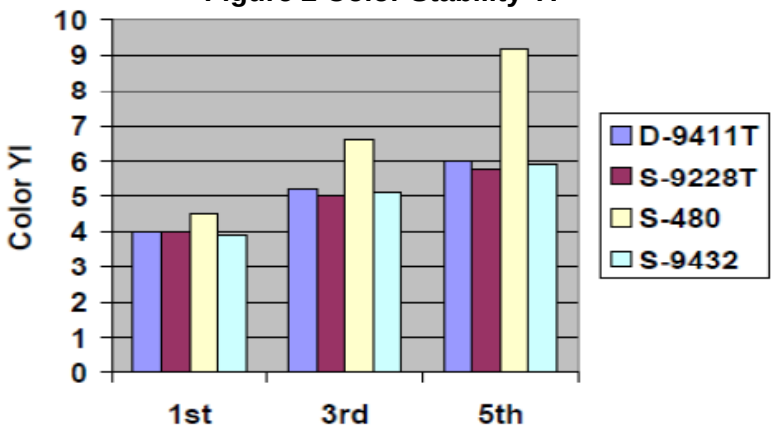
Figure 1 Melt Flow Stability



All phosphites at 500ppm
Extrusion Temp. 260°C

Base PP Contains:
500ppm Calcium stearate
500ppm Dovernox 10

Figure 2 Color Stability YI



The table below summarizes the properties and advantages of **Dovernox D-9411T**. It has reasonable cost, good performance, excellent hydrolytic stability, and excellent global regulatory clearance for indirect food contact.

Phosphite	Cost	Performance	Hydrolytic Stability	FDA SML	Cost Performance
Dovernox D-9411T	4	4	5	5	5
Doverphos S-9228T	3	5	5	5	3
Doverphos S-480	5	2	5	5	3
Doverphos S-9432	3	4	2	2	3

Rating: 5=best, 1=poorest

KEY TO ADDITIVES:

Dovernox D-9411T (1 to 1 blend of **Doverphos S-9228T** and **Doverphos S-480**)

Doverphos S-9228T Bis (2,4-dicumylphenyl) pentaerythritol diphosphite, CAS # 1548-43-8
Doverphos S-480 (Irgafos® 168) Tris (2,4-di-t-butylphenyl) phosphite, CAS # 31570-04-4
Doverphos S-9432 (Ultranox® 626) Bis (2,4-di-t-butylphenyl) pentaerythritol diphosphite, CAS # 26741-53-7
Dovernox 10 (Irganox® 1010) Tetrakis methylene (3,5-di-t-butyl-4-hydroxyhydrocinnamate) methane, CAS # 6683-19-8

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