



KemgardTM

Flame Retardant • Smoke Suppressant

NO ANTIMONY PA 6/6
KemgardTM 981
Application Advisory

SIGNIFICANT IMPROVEMENT IN STABILITY,
AND NO ANTIMONY
FOR HALOGENATED GLASS-FILLED NYLON 6/6

KEMGARDTM 981

European regulations are limiting the use of antimony oxide in flame retarded polymer formulations. It is possible to produce UL 94 V0 glass filled nylon 6/6 formulations without the use of antimony oxide. Additionally the formulations shown below are free of polybrominated diphenyloxyde (PBDO) and the halogen additives have been shown to be free of dioxin.

KemgardTM 981 is a unique zinc phosphate complex produced by a proprietary process by Sherwin Williams Chemicals Group.

All information is believed reliable; however, all recommendations are made without guarantee, since the conditions of use are beyond our control. All products are sold without warranty, expressed or implied, and on the condition that purchasers shall make their own tests to determine the suitability of such products for their purposes and that all risks are assumed by the user. Statements contained herein shall not be construed to be a recommendation to infringe any patent.

Oxychem has published much data on the use of Oxychem Dechlorane Plus®.

Their development work includes formulations which in addition to being free of antimony also exhibit 100 Volt increases in CTI.

In addition it has been shown that the inclusion of **Kemgard™ 981** in formulations containing a halogen flame retardant exhibit significantly less corrosion of compounding equipment, molding barrels, screws and most importantly of molds than formulations that do not contain the **Kemgard™ 981** smoke suppressant.

These formulations incorporate **Kemgard™ 981** and Firebrake® ZB as the synergist replacing the antimony oxide.

Shown below are two such formulations:

This is a 15% glass filled Nylon 6/6 that is UL 94 V0 at both 3.2 mm and 1.6 mm and achieves a CTI of 350 volts.

<u>Formulation Component</u>	<u>Percent Loading</u>
Nylon 6/6	60%
Glass Fiber	15%
Dechlorane Plus®	16%
Firebrake ZB®	6%
Kemgard™ 981	3%

This is a 25% glass filled formulation that is UL 94 V0 at 3.2 mm and 1.6 mm.

<u>Formulation Component</u>	<u>Percent Loading</u>
Nylon 6/6	50%
Glass Fiber	25%
Dechlorane Plus®	16%
Firebrake ZB®	6%
Kemgard™ 981	3%

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Non-antimony formulations using brominated polystyrene flame retardants such as Pyrochek[®] 68PB or Saytex[®] 7010 are also possible. A 30% glass filled formulation is shown below. This formulation will achieve a UL94 V0 rating 3.2 mm and 1.6 mm.

<u>Formulation Component</u>	<u>Percent Loading</u>
Nylon 6/6	41%
Glass Fiber	30%
Brominated Polystyrene	21%*
Firebrake ZB [®]	6%
Kemgard [™] 981	2%

*Either Pyrochek[®] 68PB or Saytex[®] 7010.

The amount of the brominated polystyrene may be reduced to 18 to 20% depending on the sensitivity of the formulation.

The Kemgard[™] 981 data sheet and MSDS are available on-line at www.kemgard.com.

Dechlorane Plus[®] is a registered trademark of Occidental Chemical Corporation.

FireBrake ZB[®] is a registered trademark of US Borax Corporation.

Pyrochek[®] and Saytex[®] are registered trademarks of Albemarle Corporation.



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