

The background of the slide is a high-contrast image of bright orange and yellow flames against a black background. The flames are dynamic and appear to be rising from a surface, with their reflection visible in the lower half of the image.

# UL94 - 5VA MATERIALS OVERVIEW

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As previously shown on Entec Technical Documents (“Understanding UL94 Flammability Ratings”), UL94 governs the flammability of plastics. Many consumer products require an elevated level of flame performance from the plastics they are molded from. As consumer markets strive for thinner, more light weight components that have a lower carbon footprint, the flammability and additive packages in the materials and the nominal thickness required to meet UL94 certification is crucial. Entec has experience in many markets ranging from HVAC, Automotive, and consumer electronics and can help you determine the best class of materials to meet your flammability and property needs. The chart below shows the diverse portfolio of products that Entec can offer with various chemistries and additive packages specific to the 5VA flammability market.

COMPANY	TRADE NAME	FAMILY	FLAME RATING PERFORMANCE RANGE	FLAME RATING PERFORMANCE RANGE
Asahi Kasei	XYRON®	PPE+PS	V0 @ 0.5mm	5VA @ 2.0mm
Ascend	VYDYNE®	PA66	V0 @ 0.2mm	5VA @ 1.5mm
BASF	PETRA®	PET	V0 @ 0.3mm	5VA @ 0.75mm
BASF	ULTRADUR®	PBT	V0 @ 0.4mm	5VA @ 1.5mm
BASF	ULTRAMID®	PA66/PA6/PA9T/PPA	V0 @ 0.25mm	5VA @ 1.5mm
Celanese	CELANEX®	PBT	V0 @ 0.38mm	5VA @ 1.5mm
Celanese	FORTRON®	PPS	V0 @ 0.38mm	5VA @ 3.0mm
CHIMEI	POLYLAC®	ABS	V0 @ 1.5mm	5VB @ 2.0mm 5VA @ 2.5mm
CHIMEI	WONDERLITE®	PC	V0 @ 1.0mm	5VA @ 2.5mm
CHIMEI	WONDERLOY®	PC+ABS	V0 @ 1.2mm	5VA @ 2.5mm
Ravago Manufacturing Americas “RMA”	HYBRID	PC+ABS	V0 @ 1.5mm	5VA @ 3.0mm
Ravago Manufacturing Americas “RMA”	HYLAC®	ABS	V0 @ 1.5mm	5VA @ 2.5mm
Ravago Manufacturing Americas “RMA”	HYLEX®	PC	V0 @ 1.5mm	5VA @ 2.5mm
Ravago Manufacturing Americas “RMA”	HYLON®	Nylon 66	V0 @ 1.5mm	5VA @ 3.0mm
Trinseo	EMERGE™	PC, PC+ABS, PC+PET	V0 @ 0.8mm	5VA @ 2.5mm

## REQUIREMENTS FOR 5VA



The specimens may not burn with flaming or glowing combustion for more than 60 seconds after the fifth application of the test flame.



The specimens may not drip flaming particles that ignite the dry absorbent surgical cotton located 300 mm below the test specimen.



Plaque specimens may not exhibit burn through.

PRODUCT	MANUFACTURER	FAMILY
XYRON® 100Z	Asahi Kasei	PPE+PS
XYRON® 240Z	Asahi Kasei	PPE+PS
XYRON® 340Z	Asahi Kasei	PPE+PS
XYRON® 440Z	Asahi Kasei	PPE+PS
XYRON® 540Z	Asahi Kasei	PPE+PS
XYRON® 644Z	Asahi Kasei	PPE+PS
XYRON® 744Z	Asahi Kasei	PPE+PS
XYRON® G601Z	Asahi Kasei	PPE+PS
XYRON® G701V	Asahi Kasei	PPE+PS
XYRON® G793Z	Asahi Kasei	PPE+PS
XYRON® X1561	Asahi Kasei	PPE+PS
XYRON® X531Z	Asahi Kasei	PPE+PS
XYRON® X552V	Asahi Kasei	PPE+PS
VYDYNE® ECO525H BK0771	Ascend	Nylon 66
VYDYNE® ECO525H NT0767	Ascend	Nylon 66
VYDYNE® ECO525K BK0778	Ascend	Nylon 66
VYDYNE® ECO525K NT0779	Ascend	Nylon 66
VYDYNE® FR350J NT0727	Ascend	Nylon 66
PETRA® 130 FR	BASF	PET
ULTRADUR® B 4040 G3 FR BK5830 Q605	BASF	PBT+PET
ULTRADUR® B 4040 G3 FR BK7696	BASF	PBT+PET
ULTRADUR® B 4441 G5	BASF	PBT
ULTRAMID® 66 H2 G/35-V0KB1 BK3324	BASF	Nylon 66
ULTRAMID® 8232G HS FR BK102	BASF	Nylon 6
ULTRAMID® A3XZG5	BASF	Nylon 66
ULTRAMID® Advanced N3U40G6 LS BK23326	BASF	Nylon 9T
ULTRAMID® T KR 4365 G5	BASF	Nylon 6/6T
CELANEX® 2016	Celanese	PBT
CELANEX® 3216	Celanese	PBT
CELANEX® 3316	Celanese	PBT
CELANEX® 3316HR	Celanese	PBT

PRODUCT	MANUFACTURER	FAMILY
CELANEX® PBT FR GF30	Celanese	PBT
CELANEX® XFR 6842 GF30	Celanese	PBT
FORTRON® 1140L4	Celanese	PPS
FORTRON® 6165A4	Celanese	PPS
POLYLAC® PA-763	CHIMEI	ABS
POLYLAC® PA-764	CHIMEI	ABS
POLYLAC® PA-764B	CHIMEI	ABS
POLYLAC® PA-764G	CHIMEI	ABS
POLYLAC® PA-765	CHIMEI	ABS
POLYLAC® PA-765A	CHIMEI	ABS
POLYLAC® PA-765B	CHIMEI	ABS
WONDERLITE® PC-616LS	CHIMEI	PC
WONDERLITE® PC-6600, EC-8100	CHIMEI	PC
WONDERLITE® PC-681U	CHIMEI	PC
WONDERLOY® PC-510	CHIMEI	PC+ABS
WONDERLOY® PC-540 J01	CHIMEI	PC+ABS
WONDERLOY® PC-540	CHIMEI	PC+ABS
WONDERLOY® PC-540A	CHIMEI	PC+ABS
HYBRID S551	RMA	PC+ABS
HYBRID S570	RMA	PC+ABS
HYLAC® FR134	RMA	ABS
HYLAC® FR134GB03	RMA	ABS
HYLEX® P1007FRVNH	RMA	PC
HYLEX® P1010FRMA	RMA	PC
HYLEX® P1010FRVNHE	RMA	PC
HYLEX® P1010G10FRMA	RMA	PC
HYLEX® P1010G20FRMA	RMA	PC
HYLEX® P1010G30FRMA	RMA	PC
HYLEX® P1010G40FRMA	RMA	PC
HYLEX® P1010G7FRMA	RMA	PC
HYLEX® P1017FRMA	RMA	PC

PRODUCT	MANUFACTURER	FAMILY
HYLEX® P1017G10FRMA	RMA	PC
HYLEX® P1018FRVNH	RMA	PC
HYLEX® P1018FRVNHE	RMA	PC
HYLEX® P1025FRMA	RMA	PC
HYLEX® P1025FRVNHE	RMA	PC
HYLEX® P1025G10FRMA	RMA	PC
HYLEX® P1025G20FRMA	RMA	PC
HYLEX® P1310FRMA	RMA	PC
HYLEX® P1310G10FRMA	RMA	PC
HYLEX® P1310G20FRMA	RMA	PC
HYLEX® P1310G30FRMA	RMA	PC
HYLEX® P1310G40FRMA	RMA	PC
HYLEX® P1310G7FRMA	RMA	PC
HYLEX® P1317FRMA	RMA	PC
HYLEX® P1317G10FRMA	RMA	PC
HYLEX® P1318FRVNH	RMA	PC
HYLEX® P1318FRVNHE	RMA	PC
HYLEX® P1325FRMA	RMA	PC
HYLEX® P1325FRVNHE	RMA	PC
HYLEX® P1325G10FRMA	RMA	PC
HYLEX® P1325G20FRMA	RMA	PC
HYLON® N1015HLFRA BK	RMA	Nylon 66
HYLON® N1025HLFRA BK	RMA	Nylon 66
HYLON® N1033HLFRA BK	RMA	Nylon 66
TRIPET® LV2550GN30	Samyang	PET
TRIPET® LV2550GN45	Samyang	PET
TRIPET® NP2559GN30	Samyang	PET
TRIPET® NP2559GN45	Samyang	PET
TRIPPE® DA855	Samyang	PPE
TRIEX® Compound SF3200GNH10	Samyang	PC
TRIEX® Compound SF3200GNH20	Samyang	PC

PRODUCT	MANUFACTURER	FAMILY
EMERGE™ PC 4903	Trinseo	PC
EMERGE™ PC 4903ECO-12	Trinseo	PC
EMERGE™ PC 8030-15	Trinseo	PC
EMERGE™ PC 8070-15	Trinseo	PC
EMERGE™ PC 8110-10	Trinseo	PC
EMERGE™ PC 8110-15	Trinseo	PC
EMERGE™ PC 8130-10	Trinseo	PC
EMERGE™ PC 8130-13	Trinseo	PC
EMERGE™ PC 8130-15	Trinseo	PC
EMERGE™ PC 8130ECO-13	Trinseo	PC
EMERGE™ PC 8210-10	Trinseo	PC
EMERGE™ PC 8210-15	Trinseo	PC
EMERGE™ PC 8210-22	Trinseo	PC
EMERGE™ PC 8210-31	Trinseo	PC
EMERGE™ PC 8230-10	Trinseo	PC
EMERGE™ PC 8230-15	Trinseo	PC
EMERGE™ PC 8230-31	Trinseo	PC
EMERGE™ PC 8702-15 (AP)	Trinseo	PC
EMERGE™ PC 8702-5	Trinseo	PC
EMERGE™ PC 8702ECO-10	Trinseo	PC
EMERGE™ PC 8731	Trinseo	PC
EMERGE™ PC 8731HH	Trinseo	PC
EMERGE™ PC 8830-5 LT	Trinseo	PC
EMERGE™ PC/ABS 7502	Trinseo	PC+ABS
EMERGE™ PC/ABS 7700 SK	Trinseo	PC+ABS
EMERGE™ PC/ABS 7700	Trinseo	PC+ABS
EMERGE™ PC/ABS 7710 SK	Trinseo	PC+ABS
EMERGE™ PC/ABS 7710	Trinseo	PC+ABS
EMERGE™ PC/ABS 7760	Trinseo	PC+ABS
EMERGE™ PC/PET 9500CR SK	Trinseo	PC+PET
EMERGE™ PC/PET 9500CR	Trinseo	PC+PET