

# In a Building Fire, Every Second Counts

1

## Flame retardants reduce

- The probability that a heat or ignition source will initiate a growing, spreading fire.<sup>1</sup>
- Heat release rate of burning materials
- Growth of a fire

2

## Flame retardants increase

- Time to ignition
- The time available for escape or fire fighting.<sup>2</sup>

3

## Most combustion

by-products are toxic regardless of the material burned or the presence of flame retardants.

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## Each fire averted

means toxic and environmental hazards from that fire have been prevented.

**Fire prevention remains a serious public health issue.** Between 2010 and 2014, U.S. fire departments responded to an estimated annual average of 45,210 reported U.S. home structure fires involving electrical failure or malfunction.<sup>3</sup> These fires caused annual averages of 420 civilian deaths, 1,370 civilian injuries, and \$1.4 billion in direct property damage.<sup>4</sup>



Since the introduction of strict fire safety standards in the U.S. — including those standards where flame retardants are a useful tool — **fires have been reduced by over 50 percent**, from 734,000 in 1980 to 363,000 in 2018.<sup>5</sup>

### References

1. Toxic Hazards to Fire Fighters, Including Effects of Fire Retardants, During Fires & Post-Fire Investigation Activities," Prof. Purser, Hartford Environmental Research, 2009. [https://www.nist.gov/system/files/documents/e/fire\\_research/4-Purser.pdf](https://www.nist.gov/system/files/documents/e/fire_research/4-Purser.pdf)
2. Hazard Comparison of Fire-Retarded & Non-Fire Retarded Products," Vytenis Babrauskas, et al., July 1988. <https://nvlpubs.nist.gov/nistpubs/Legacy/SP/nbsspecialpublication749.pdf>
3. NFPA, "Home Electrical Fires," March 2019. <https://www.nfpa.org/-/media/Files/News-and-Research/Fire-statistics-and-reports/US-Fire-Problem/Fire-causes/osHomeElectricalFires.pdf>
4. TJ McCue, Forbes, "24 Electronic Products per Household – Got Recycling," Jan. 2013. <https://www.forbes.com/sites/tjmccue/2013/01/02/24-electronic-products-per-household-got-recycling/#dc139d82c2e6>
5. NFPA, "Fire Loss in the United States During 2018," October 2019. <https://www.nfpa.org/-/media/Files/News-and-Research/Fire-statistics-and-reports/US-Fire-Problem/osFireLoss.pdf>