# Article information:

Synergistic effects of a highly effective intumescent flame retardant based on tannic acid functionalized graphene on the flame retardancy and smoke suppression properties of natural rubber - ScienceDirect  
<https://www.sciencedirect.com/science/article/abs/pii/S1359835X19304646>

# Article summary:

1. Intumescent flame retardants (IFRs) are a promising halogen-free flame retardant with the advantages of anti-drop, low fire toxicity and low smoke.

2. Graphene is a commonly used carbon-based nanofiller for improving flame retardance of polymers due to its excellent fire retardant effect.

3. Tannic acid functionalized graphene has been developed as an efficient natural intumescent flame-retardant system to enhance the overall performance of rubber materials in terms of flame retardancy and smoke suppression properties.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article “Synergistic effects of a highly effective intumescent flame retardant based on tannic acid functionalized graphene on the flame retardancy and smoke suppression properties of natural rubber” provides an overview of the development and application of tannic acid functionalized graphene as an efficient natural intumescent flame-retardant system for enhancing the overall performance of rubber materials in terms of flame retardancy and smoke suppression properties. The article is well written, providing detailed information about the components, structure, and mechanism of action of this new system.

The article is generally reliable and trustworthy, as it provides evidence to support its claims through references to previous research studies. It also presents both sides equally by discussing both the advantages and disadvantages associated with traditional APP-based intumescent flame retardants. Furthermore, it does not contain any promotional content or partiality towards any particular product or company.

However, there are some points that could be improved upon in order to make the article more reliable and trustworthy. For example, while the article discusses potential risks associated with using this new system, it does not provide any evidence or data to support these claims. Additionally, while it mentions possible counterarguments against using this system, it does not explore them in detail or provide any evidence to refute them. Finally, while it mentions that tannic acid has many special properties such as antioxidant effects and antibacterial effects, it does not provide any evidence or data to support these claims either.

In conclusion, while this article is generally reliable and trustworthy due to its detailed information about the components, structure, and mechanism of action of this new system as well as its references to previous research studies; there are still some areas that could be improved upon in order to make it even more reliable and trustworthy such as providing evidence for potential risks associated with using this new system as well as exploring possible counterarguments against using this system in more detail.

# Topics for further research:

* Intumescent flame retardant properties
* Smoke suppression properties of natural rubber
* Antioxidant effects of tannic acid
* Antibacterial effects of tannic acid
* Advantages of traditional APP-based intumescent flame retardants
* Disadvantages of traditional APP-based intumescent flame retardants

# Report location:

<https://www.fullpicture.app/item/36e6f0ccee435f7c6f4c1cd4488adf8f>