

# The effect of flame retardant additives DDM-DOPO and graphene on flame propagation over glass fiber-reinforced epoxy resin under the influence of external thermal radiation

O.P. Korobeinichev<sup>1,\*</sup>, E.A. Sosnin<sup>1,2</sup>, A.A. Shaklein<sup>3</sup>, A.I. Karpov<sup>3</sup>, S.A. Trubachev<sup>1</sup>, A.G. Shmakov<sup>1</sup>, A.A. Paletsky<sup>1</sup>, A.R. Sagitov<sup>1,2</sup>, I.V. Kulikov<sup>1</sup>

<sup>1</sup> Voevodsky Institute of Chemical Kinetics and Combustion SB RAS, 630090 Novosibirsk, Russia

<sup>2</sup> Department of Physics, Novosibirsk State University, 630090 Novosibirsk, Russia

<sup>3</sup> Udmurt Federal Research Center, 426067 Izhevsk, Russia

\*Corresponding author: okorobeinichev@gmail.com

## Supplementary material

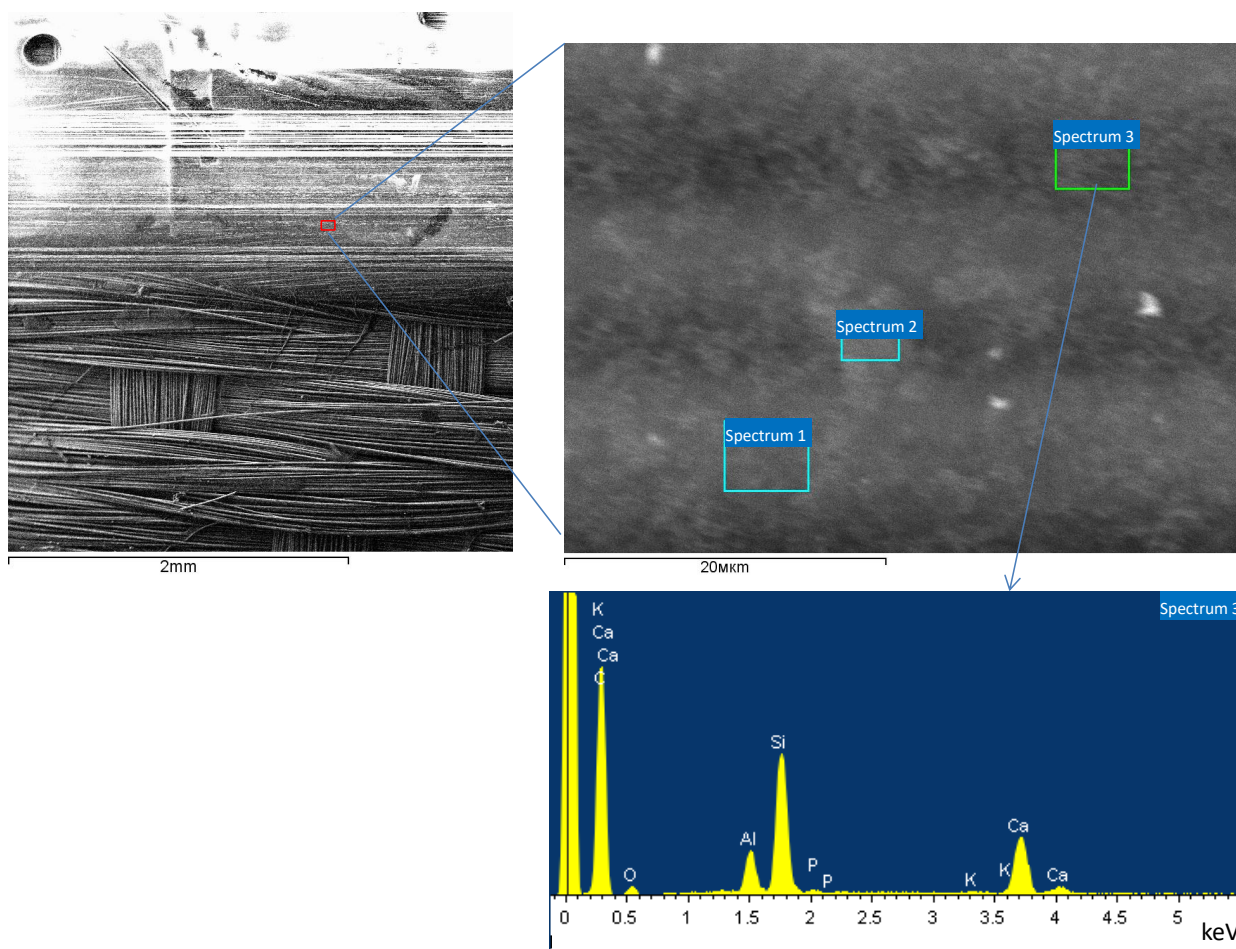


Figure S1. SEM micrographs and X-ray energy dispersive spectra for glass fiber reinforced epoxy resin samples with 1.5% DOPO-DDM additives.

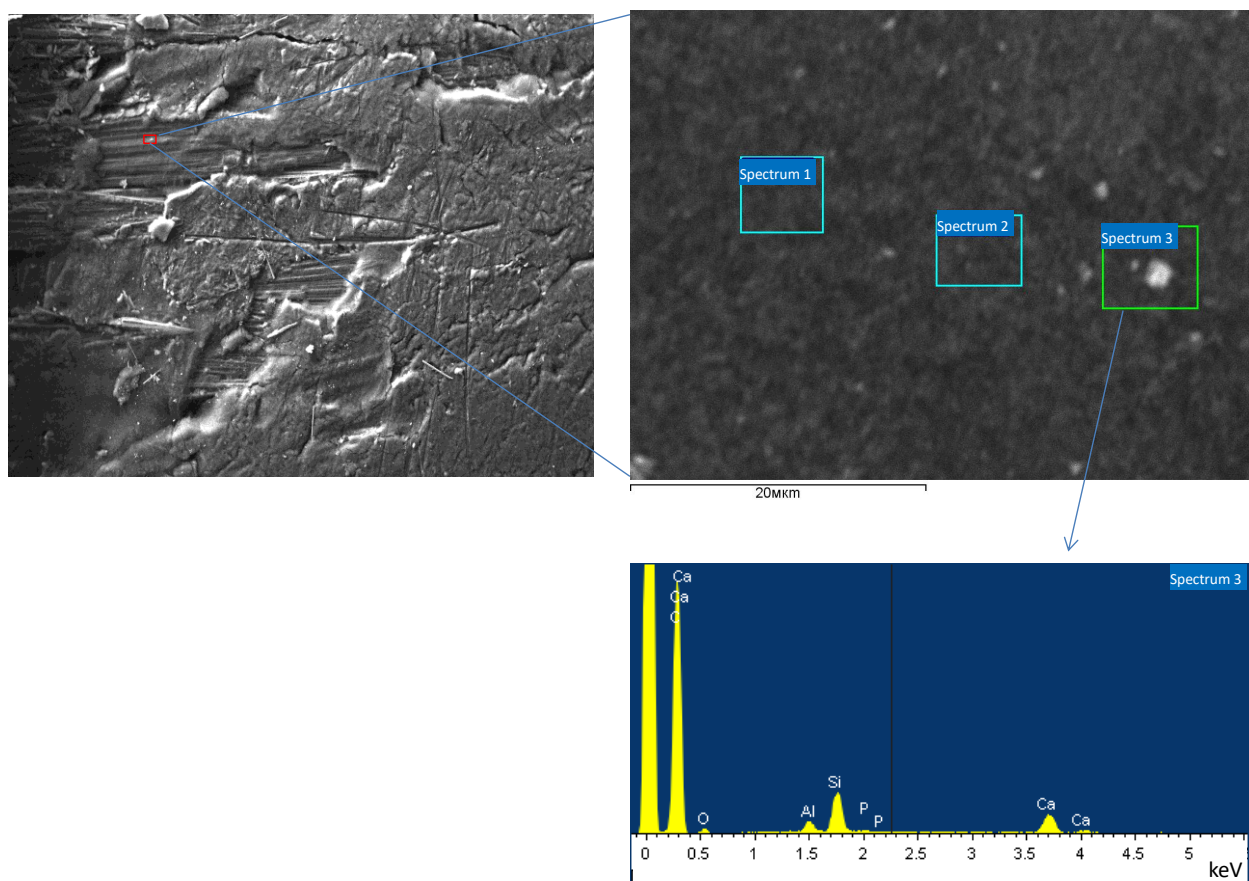


Figure S2. SEM micrographs and X-ray energy dispersive spectra for glass fiber reinforced epoxy resin samples with 3% DOPO-DDM additives.