Electronic Supplementary Material (ESI) for RSC Advances

Supplementary Information for "Experimental and theoretical study of the degradation of malonamide extractant molecules under ionizing radiation"

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Figure 1. Infrared spectrum in the 1500-1750 cm^{-1} wavenumber range of 10^{-1} $mol.dm^{-3}$ *N*-methyl-*N,N'*-dioctylhexylethoxymalonamide MDOHEMA in octane solution.

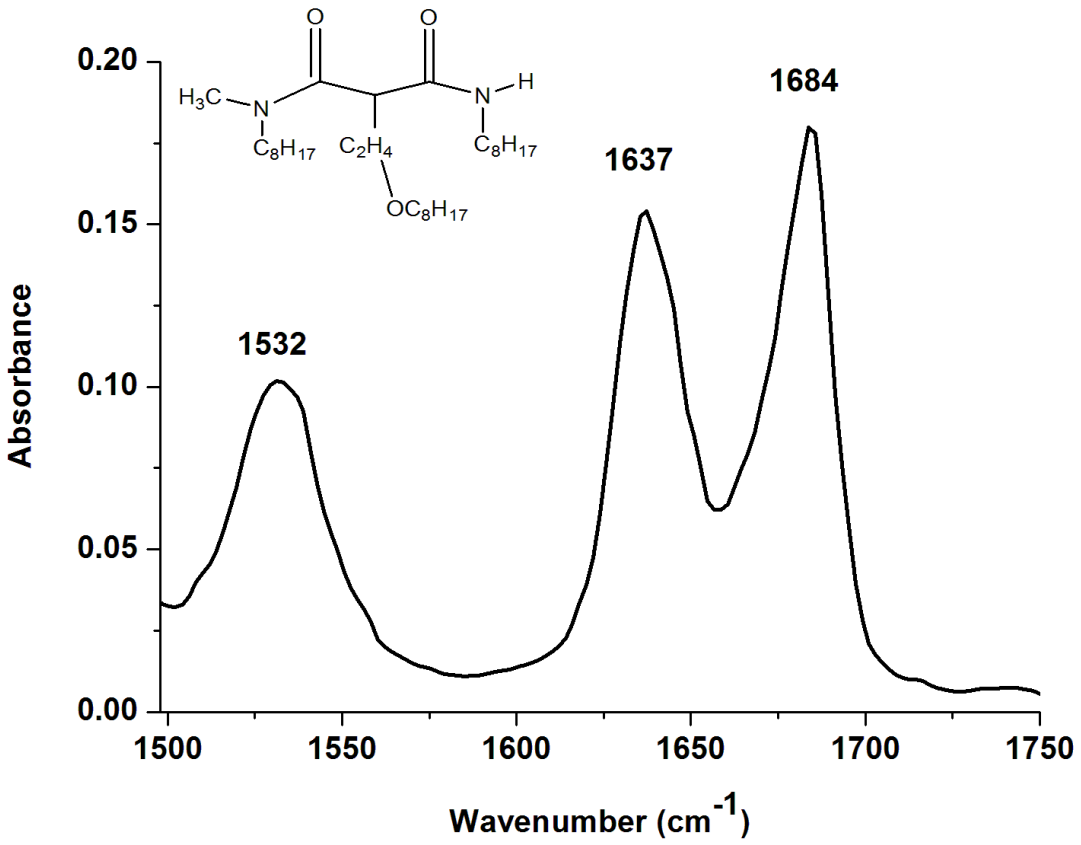

Figure 2. Infrared spectrum in the 1500-1800 cm^{-1} wavenumber range of 10^{-1} $mol.dm^{-3}$ *N*-methyl-*N*-butylhexadecylamide in octane solution.

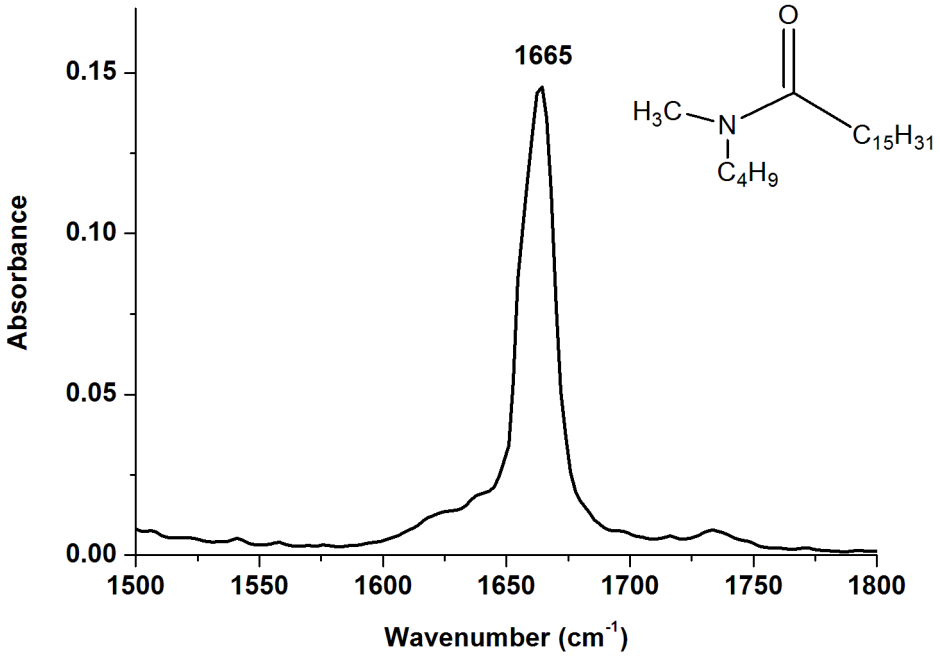

Figure 3. Infrared spectrum in the 1500-1800 cm^{-1} wavenumber range of 10^{-1} $mol.dm^{-3}$ *N*,*N*-dibutylformamide in octane solution.

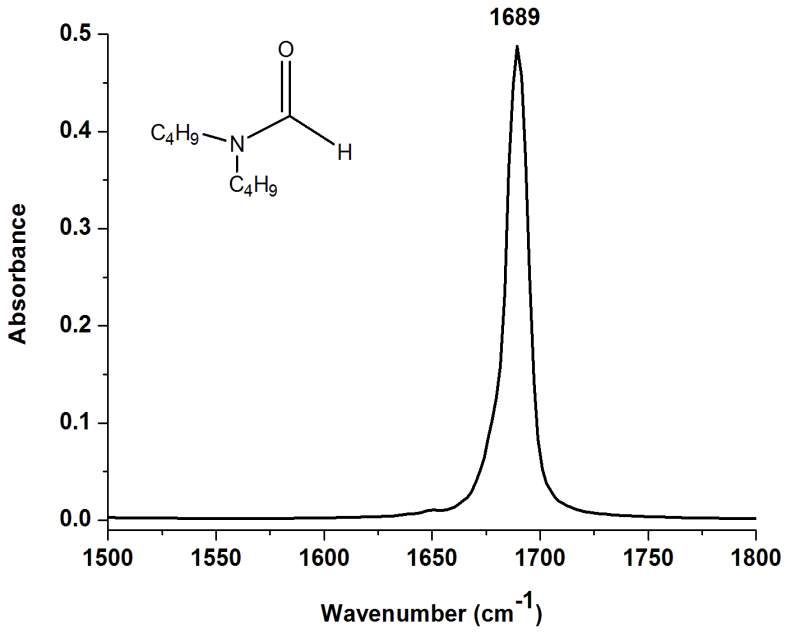

Figure 4. Infrared spectrum in the 1500-1800 cm^{-1} wavenumber range of 10^{-1} $mol.dm^{-3}$ *N,N'*-dimethyl-*N,N'*-dibutyltetradecylmalonamide (DMDBTDMA) in octane solution.

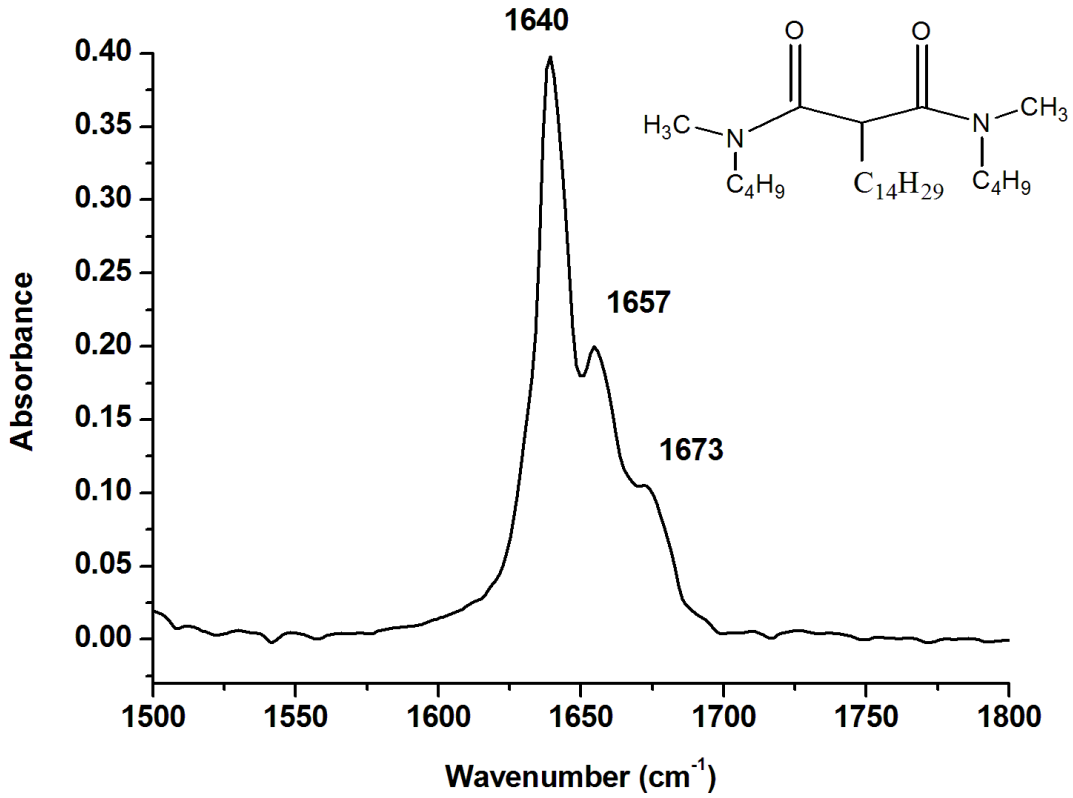

Figure 5. Infrared spectrum in the 1500-1800 cm^{-1} wavenumber range of 10^{-1} $mol.dm^{-3}$ *N,N'*-dimethyl-*N,N'*-dioctylhexylethoxymalonamide (DMDOHEMA) in octane solution.

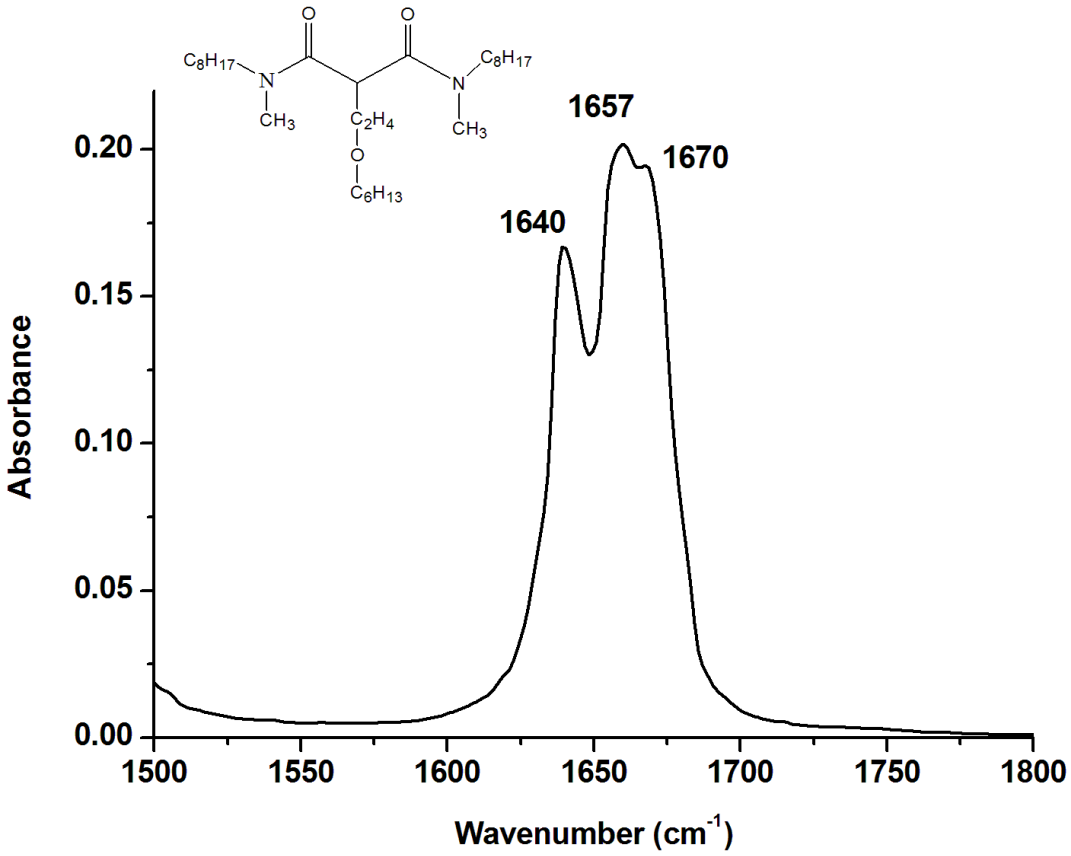

Figure 6. ESI-MS^2 spectrum of *m/z* = 327.4 of a 10^{-1} mol.dm^{-3} TEMA solution in *n*-octane after radiolysis. The inset is the formula proposed from the spectrum.

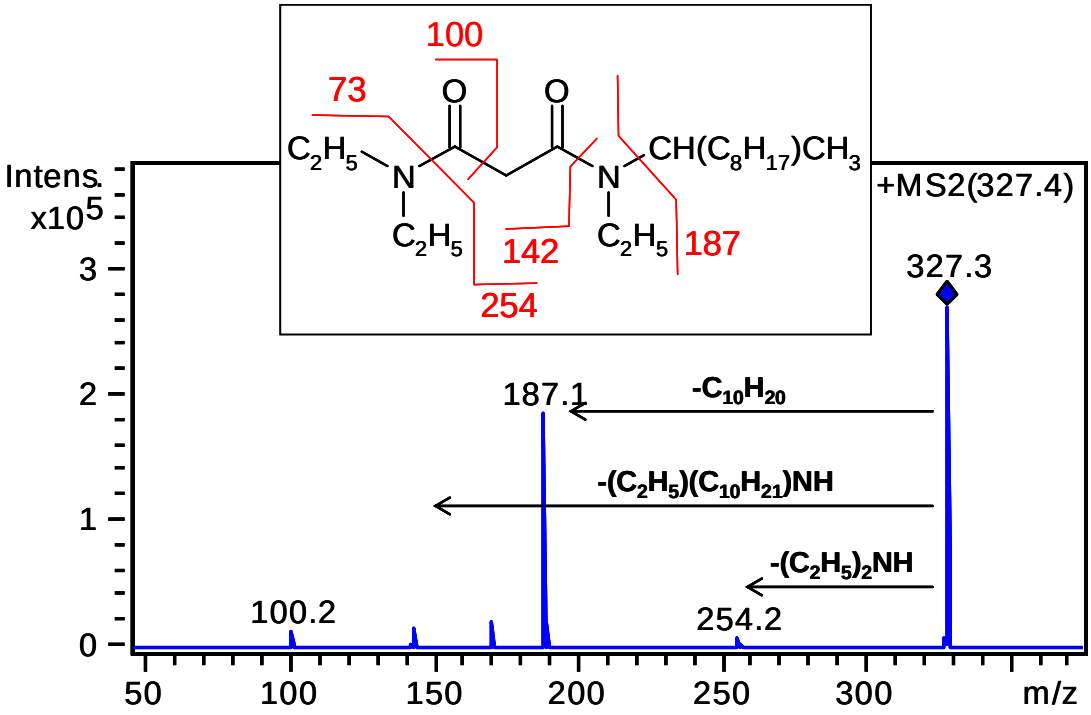

Figure 7. Evolution of the differential absorbance (after/before) irradiation of a 10^{-1} mol.dm^{-3} *N,N,N',N'*-tetrabutylmalonamide ($((C_4H_9)_2NCO)_2CH_2$) solution in the 1560-1760 cm^{-1} spectral region after a 20 kGy irradiation. The spectrum is recorded just after irradiation. The bands formed after irradiation are at 1673 and 1698 cm^{-1}.