The answers to the referee reports

The referee 1.

A few sentences have been added to the end of introduction section on why this copolymer was select as a working topic. in this study, These are :

“This condensation copolymer contains interesting functional groups, in its main chain, such as ether, hydroxyl, amine groups, aromatic rings, and epoxide groups at the chain ends. It has been synthesized with the thought that a copolymer with these functional groups and its MWCNT composites will may exhibit interesting electrical and thermal properties.”

Since this copolymer is not soluble in THF, the GPC technique could not be used to determine the molecular weight. Since the proton signals belonging to the end groups coincide with the proton signals in the piperazine ring, the 1H NMR technique also could not be used for molecular weight determination by end group analysis

On Figure 7, page 14, TGA curve that matrix copolymer and composite with 2% of MWCNT have weight loss of 91.7 % and 89.2 % at 500 oC, not 30 %.

As the reason for decrease of thermal stability of nanocomposites according to the temperature at which decomposition begins, the following sentence has been added to the text:

“Probably, the radicals which have remained within the MWCNT during the oxidation have initiated decompose of the polymer at a lower temperature.”

The referee 2.

1. A few sentences have been added to the end of introduction section on why this copolymer was selected as a working topic in this study.

These are :

“This condensation copolymer contains interesting functional groups, in its main chain, such as ether, hydroxyl, amine groups, aromatic rings, and epoxide groups at the chain ends. It has been synthesized with the thought that a copolymer with these functional groups and its MWCNT composites will may exhibit interesting electrical and thermal properties.”

1. PO in the given text „PO/phenol 1“ is the abbreviation of propylene oxide. PO/phenol 1 is given as a property of “bisphenol A propoxylate diglycidyl ether” in Sigma-Aldrich.
2. For IR spectra, “using KBr disc in range of 4000-450 cm-1.” statement was added to the text, in the material section.

For SEM photographs, the magnification for every image has been added to the caption of Figure 3. The sentence in the Measurements section was reorganized as follows:

Scanning electron microscopy (SEM) images were used to examine the distribution in the composite materials of nanoparticals, and they were taken with a Jeol JSM-7001F instrument from gold coated powder samples.

1. In stead of MWCNT-COOH and MWCNT-NH2 were used oxidized MWCNT and aminated MWCNT, respectively, in all texts and figures.
2. Since this copolymer is not soluble in THF, the GPC technique could not be used to determine the molecular weight. Since the proton signals belonging to the end groups coincide with the proton signals in the piperazine ring, the 1H NMR technique also could not be used for molecular weight determination by end group analysisi. Perhaps some calculations can be made from the differences between the integral heights of the signals between 2.2-3.0 ppm including the end epoxide protons and the integral height of the proton signals not found in the end group, but I do not think it will be reliable. Such a calculation was not made for this reason.
3. FT-IR spectra and TGA curve of the mixture of amineted MWCNT and oxidized MWCNT have been added to Figure 1 and Figure 7, respectively. Some sentences about the spectra and the curve were added to the text.
4. The decrease in the intensity of the vibration bands of the epoxide groups was also confirmed by absorbance measurements. In the text, "some part of" is added in front of the epoxide ring. in the sentence “This is probably due to opening by the acid and amine groups of the epoxide ring”, that is, the new sentence : This is probably due to opening by the acid and amine groups of some part of the epoxide ring
5. In the section “thermal investigation”, the phrase “at which the rapid decomposition begins” has been added to the first sentence as definition of “ initial decomposition temperature”. In addition, in Table 2, Ti, Tsecd and Ttrd were also defined in the footnote.
6. Tg values have been obtained during first heating cycle. You are right about the obtained Tg values of the composites, they are significantly lower compared to that of the copolymer. Hydrogen bonds and dipole interactions between the copolymer molecules breaks down as the acid and amine groups at ends of MWCNT interact with the hydrogen bond throughout the chain of the copolymer.This event leads to an increase in free volume in the copolymer, since the copolymer chains are separated from each other, and as a results the Tg value may have decreased considerably.

These results were discussed in the text.