EXTENDED SUMMARY

It was seen students have got some misconceptions related to topics of chemistry and they are forced to construct in their mind in a lot of researches (Acar & Tarhan, 2008; Adadan, 2012; Çalık & Ayas, 2002; Haigh, France & Gounder, 2011; Karaçöp & Doymuş, 2012; Piquette & Heikkinen, 2005; Treagust, Chittleborough & Mamiala, 2003; Wheeldon, Atkinson, Dawes & Levinson, 2012). In the basis of these problems of students, it is underlined to be abstract of lots of concepts in chemistry and students do not understand these concepts correctly. It is difficultly for students to understand abstract concepts as per concrete concepts that are visible and explained with experiments. If it is thought that these abstract concepts are in micro level, it appears the reasons of students’ problems. Because of gases, that is, one of the difficult topics of chemistry is abstract, needs to understand in molecular level (Demirer, 2009) and force to be related concepts of gases with daily life (Tüysüz, Tatar & Kuşdemir, 2010), students get hard to understand this topic. If it is thought that students have a lot of problems and misconceptions related to gases, it is necessary to determine students’ misconceptions of micro level and do different studies in order to remove these problems. The aim of this research is to determine of science students’ understanding level of gases topic at micro level. For this reason, it was studied with science students at university level. The sample of this research formed with 57 science students studying at Ataturk University Kazim Karabekir Faculty of Education. Survey method was used in this research. If it was wanted to determine existing case in a research, it should be used survey method (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz & Demirel, 2012). In order to determine students’ understandings of gases topic at micro level, it preferred to survey method. A test that consists of three open-ended questions for aim to collecting data was used. Questions were prepared to determine students’ understandings related to gases by researchers. Content analysis and descriptive statistics was used for data analysis. For this reason, students’ answers are categorized as “answer that is true as scientific”, “answer that contains misconceptions” and “irrelevant answer” for each question. After, Descriptive statistic of data was done. According to findings from obtained research there were some misconceptions related to gases at science students as to think the dispersion of gases related to molecule mass and not to know the gases filling the volume of its cap completely (Table 2 and Table 4). Besides, it was determined that students omit that evaporation occurs at each temperature, they thought that gas molecules get together and crowd known part of container if it takes away colder environment and they do not think that gases compose a homogeneous mixture (Table 6). It can be said that the reasons of students’ conceptual mistakes usually contain macro level explanations of topic expression and it is not to allow concepts related to gases topic at micro level at students in their mind. According to a lot of researches in topic of gases , it was determined that students have some misconceptions related to topic (Azizoğlu & Geban, 2004; Coştu, 2007; Çalık & Ayas, 2005; Demircioğlu & Erçebi, 2013; Erten & Yıldırım, 2010; Novick & Nussbaum, 1978; Stavy, 1988; Sere, 1998). Parallel results were also found in this research. In order not to make mistake related to concepts of gases, firstly speech using at expression topic should be correct at micro level. In addition, students’ problems related to topic and where these problems originate and how these problems remove should be determined. For this reason, it should be provided that students construct concepts in their minds correctly.