THE CAUSE OF BURN ACCIDENTS BY THE USE OF BIO-ETHANOL (078)

*van Zoonen E.¹, van Eck I.¹, van Baar M.², Dutch Burn Repository Group ..²

¹ Dutch Burns Foundation, Beverwijk, Netherlands
² Association of Dutch Burn Centres, Beverwijk, Netherlands

Introduction: Since 2010, commercially available bio-ethanol fuelled burners became increasingly popular in Europe. In that year, many Dutch employees received a bio-ethanol ambiance light as a company Christmas gift. Also many bio-ethanol fuelled fireplaces were sold that year. Bio-ethanol is known as a clean fuel, no venting is required for using a bio-ethanol fuelled fire place. Bio-ethanol is also cheap and the burning of bio-ethanol produces an ambient light.

Unfortunately, the increase in bio-ethanol use resulted in an increase in the number of burn injury victims as a result of accidents with bio-ethanol. In 2010 there were 2 victims of accidents with bio-ethanol requiring admission in a Dutch burn centre, whereas this number rose to 29 victims in 2011. Between January 2011 and December 2013, 80 victims of bio-ethanol were admitted in the Dutch burn centres, representing 3,6% of the all admitted patients due to a burn injury (data Dutch Burn Repository R3). To assess what caused this sudden peak in accidents with bio-ethanol, a qualitative exploring research with an interpretative variant was performed.

Methods: First, field research was conducted. Three experts on bio-ethanol (burners) were questioned in order to construct sensitizing concepts as a background for framing the interviews. Second, non steering semi-structured interviews were conducted among 14 victims of a bio-ethanol burn accident. Complete transcripts of the recorded interviews were divided by thematic fragments and coded according to the sensitizing concepts. All the identical coded fragments were combined.

Results: Bio-ethanol was often misused, that is 8 of the 14 participants used the bio-ethanol as an accelerant for lighting up a fire or barbeque instead of using it for bio-ethanol fuelled burners. Also, 8 participants did not purchase the bio-ethanol themselves, and as a result they were not adequately informed about the dangers of bio-ethanol use. All participants had poor knowledge of bio-ethanol use and most participants did not read the conditions of use. When the conditions of use of bio-ethanol (burners) are not completely followed, accidents may easily happen. Vapour formation in half-full bio-ethanol bottles forms a major risk for an explosion, especially when there is a flame in close proximity when using bio-ethanol. Bio-ethanol flames are nearly invisible. Many of the bio-ethanol bottles were half-full when the accident happened and flames were still in place when using bio-ethanol.

Conclusion: Bio-ethanol is cheap and easily obtainable, which creates an image of an innocent product. Instead, bio-ethanol is a product with a high risk of accidents when misused. Our outcomes showed that during accidents with bio-ethanol, there was a lack of knowledge, bio-ethanol was used for the wrong purpose and flames were still in place when using bio-ethanol. In order to prevent accidents with bio-ethanol, manufacturers might be encouraged to produce safer products, bio-ethanol must not be that easy to obtain and users have to be better informed about the right use of bio-ethanol (burners).