

#### 1.5.6.4 Total organic carbon emissions (TOC)

General considerations regarding TOC can be found in Sections 1.3.4.5 and 1.4.5.4.

**22. BAT is to keep the emissions of TOC from the flue-gases of the kiln firing processes low (see Section 1.4.5.4) by applying the following measure/technique:**

- a) avoid feeding raw materials with a high content of volatile organic compounds into the kiln system via the raw material feeding route.

In this context, when co-incinerating wastes, the requirements of the Waste Incineration Directive (WID) have to be met [59, European Union, 2000].

#### 1.5.6.5 Hydrogen chloride (HCl) and hydrogen fluoride (HF) emissions

General considerations regarding HCl and HF emissions can be found in Sections 1.3.4.8 and 1.4.5.5.

**23. BAT is to keep the emissions of HCl below 10 mg/Nm<sup>3</sup> (BAT-AEL), as the daily average value or average over the sampling period (spot measurements, for at least half an hour), by applying the following primary measures/techniques individually or in combination:**

- a) using raw materials and fuels containing a low chlorine content (see also Sections 1.4.3.2 and 1.4.3.3)
- b) limiting the amount of chlorine content for any waste that is to be used as raw material and/or fuel in a cement kiln (see Section 1.2.4, 1.4.3.2 and 1.4.3.3).

**24. BAT is to keep the emissions of HF below 1 mg/Nm<sup>3</sup> (BAT-AEL) expressed as HF, as the daily average value or average over the sampling period (spot measurements, for at least half an hour), by applying the following primary measure/technique individually or in combination:**

- a) using raw materials and fuels containing low fluorine (see also Sections 1.4.3.2 and 1.4.3.3)
- b) limiting the amount of fluorine content for any waste that is to be used as raw material and/or fuel in a cement kiln (see Section 1.2.4, 1.4.3.2 and 1.4.3.3).

In this context, see Section 4.2.2.1.1, where examples of concentration ranges for substances in waste/waste input criteria are presented. Furthermore in this context, when co-incinerating waste, the requirements of the Waste Incineration Directive (WID) have to be met [59, European Union, 2000].

#### 1.5.7 PCDD/F emissions

General considerations regarding PCDD/F emissions can be found in Sections 1.3.4.6 and 1.4.6.

**25. BAT is to avoid emissions of PCDD/F or to keep the emissions of PCDD/F from the flue-gases of the kiln firing processes low by applying the following measures/techniques individually or in combination:**

- a) carefully selecting and controlling of kiln inputs (raw materials), i.e. chlorine, copper and volatile organic compounds
- b) carefully selecting and controlling of kiln inputs (fuels), i.e. chlorine and copper
- c) limiting/avoiding the use of wastes which contain chlorinated organic materials