



# IPCC Inventory Software



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### **2.F.1** Refrigeration and Air Conditioning

**2.C.3** Aluminium Production



### 2.F.1. Refrigeration and Air Conditioning

Some parameters (i.e. **emission factors**, **gas recovery percentages**, etc.) may vary over the years due to the development of new technologies or the enforcement of new Regulations or the introduction of new refrigerant management practices/measures (i.e. EU Regulation 517/2014).



#### **Italy case**

In the Italian inventory, the product's life leakage rates for commercial refrigeration decrease from 15% in 1995 to 10% from 2015 up to now, the manufacturing emission factors vary from 3% in 1995 to 0.5% from 2000 up to now. In all other sub-sectors, we also have parameters that decrease from 1990 to the present, due to the good practices that have been adopted by operators over the decades.

#### **Software Bug individuated**

In the <u>software worksheets</u> the parameters as emission factors or gas recovery rates <u>cannot be changed over the years</u>, unless this change affects the entire time-series



### 2.F.1. Refrigeration and Air Conditioning

#### Italy case: bottom-up estimation for Domestic Refrigeration and Stationary Air Conditioning

In the Italian inventory, emissions from Domestic Refrigeration and Stationary Air Conditioning are estimated from the number of equipment produced and sold: direct compilation of the fields provided by the software is not possible, it could be but with ad hoc adjustments by the compiler which are difficult to verify.



#### NOT a Software Bug but...

Software use not easy and not user friendly for the estimation process



### **2.C.3 Aluminium Production**

#### Software Bug individuated Worksheet "PFC emissions from Aluminium Production – C<sub>2</sub>F<sub>6</sub> Gas"

 $C_2F_6$  emissions derive from  $CF_4$  emissions. In the  $\underline{C_2F_6}$  Worksheet, column P 'Aluminium production' is reported. Consequently, the  $C_2F_6$  emission is calculated by multiplying the  $C_2F_6$  emission factor by the aluminium production, whereas, for a correct estimate, the emission factor should be multiplied by the  $CF_4$  emission. The column ' $CF_4$  emissions' should be inserted in place of the column "Aluminium production"

Even if you enter  $CF_4$ emissions in the P column, the software automatically updates the P column of the  $CF_4$  gas worksheet, producing an error in the calculation of emissions of this gas.





### **2.C.3 Aluminium Production**

If the aluminium production plant uses several technologies at the same time (i.e. in Italy in 1990 a plant used 16% SWPB technology cells and 84% Point Fed technology cells), it is not possible to enter the data and parameters for each technology separately. It is necessary to merge the technologies, estimate the values needed to calculate the emissions (i.e. the weighted emission factor must be estimated from the emission factors of each technology) and then enter the values calculated into the software.



#### NOT a Software Bug but...

Just an example of a specific national circumstance for which the use of software is not so straightforward.







## Thank you for your attention

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