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First achievements and strengthening of the Swiss F-gas regulation



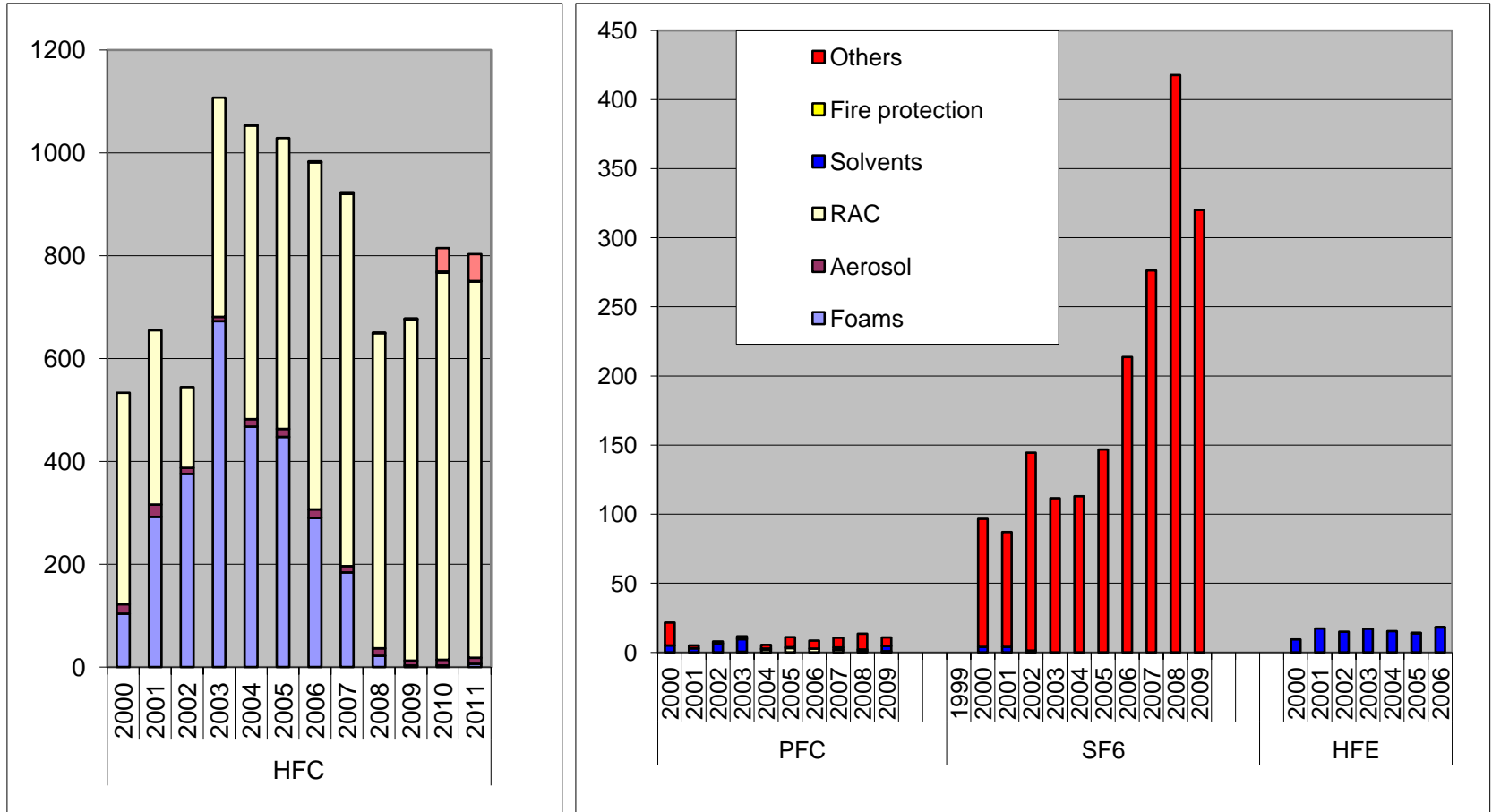
Blaise Horisberger

Brussels, 6. November 2012



F-GHG Swiss Imports 2000 - 2011

Quantities in tonnes / year

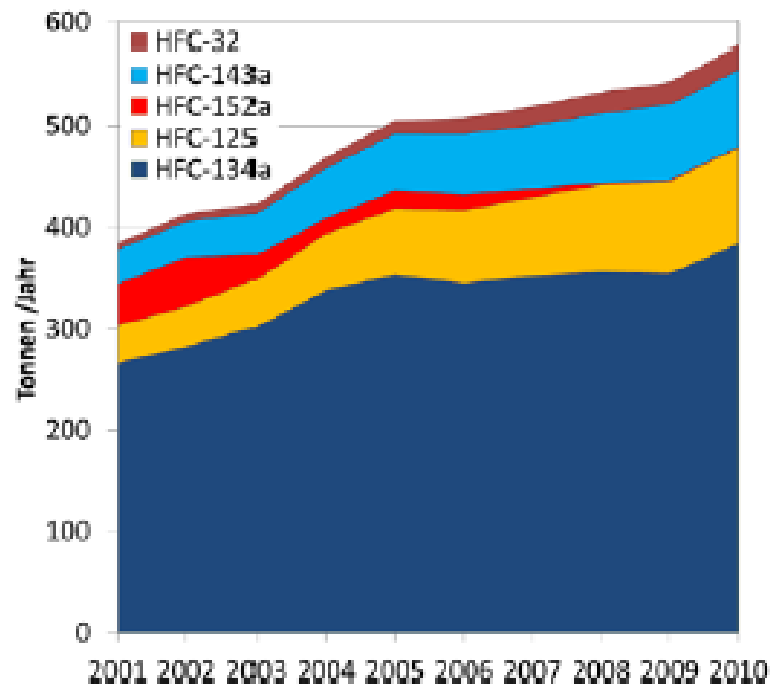
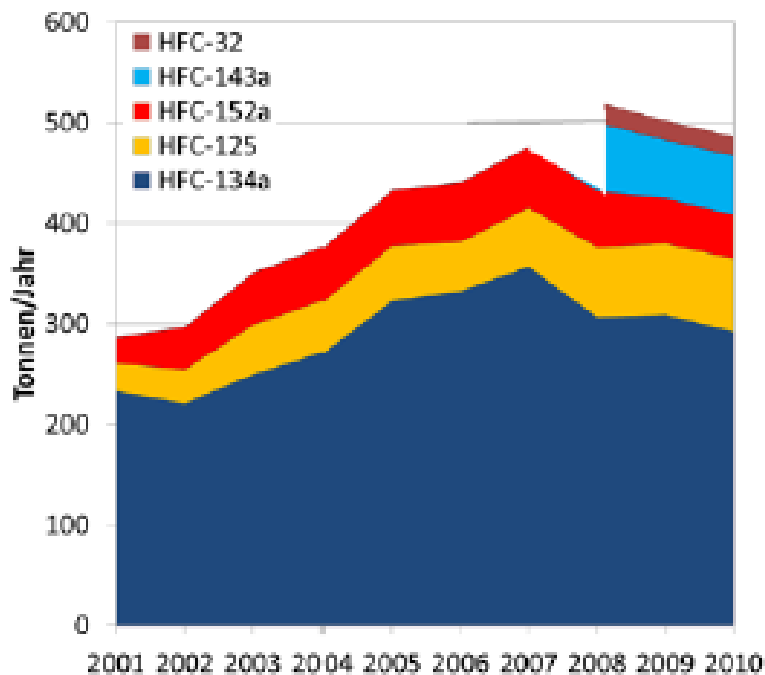


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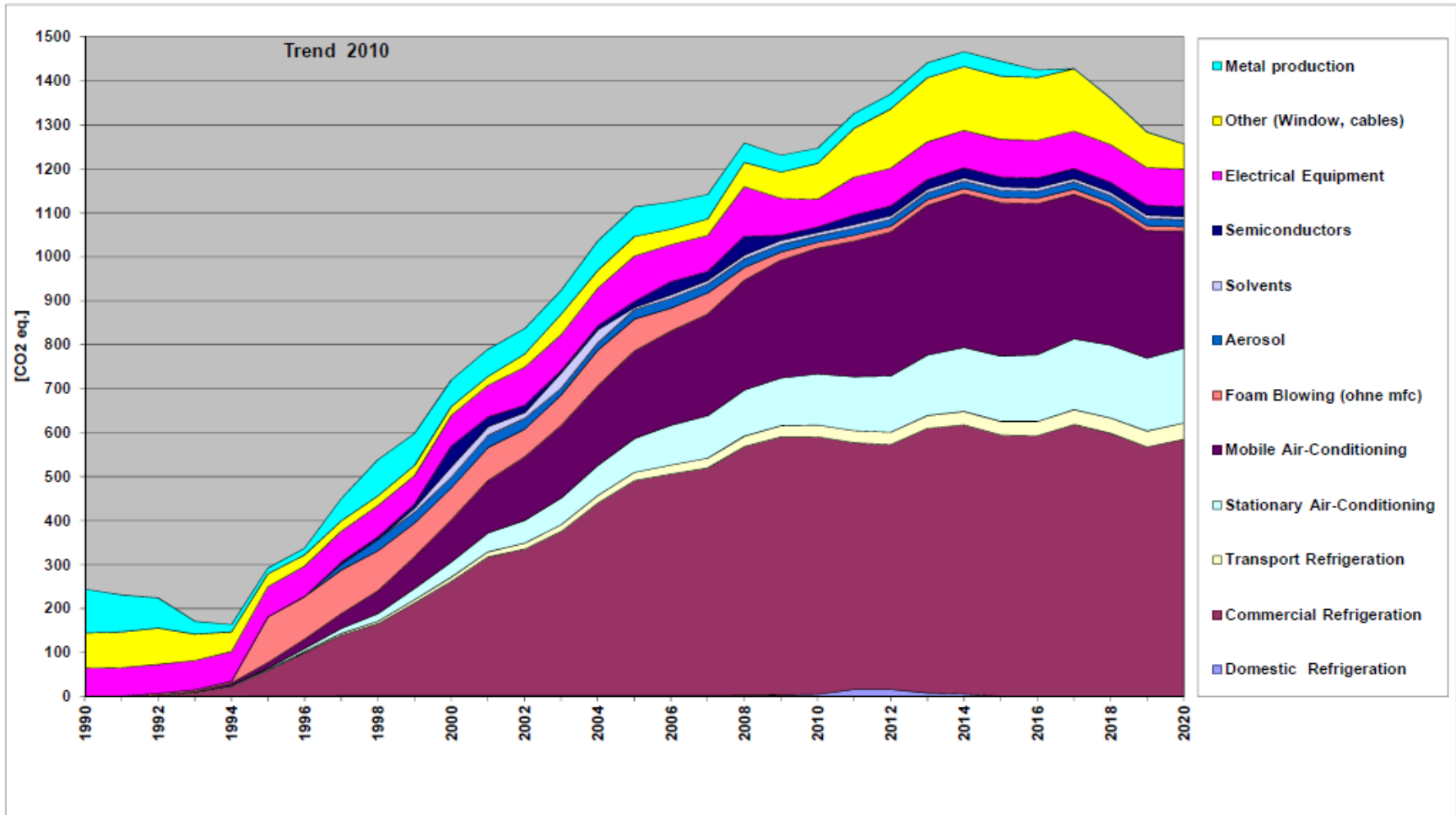


Estimations of Swiss emissions of F-GHG based on air analysis and for National inventory





Trend calculation of emissions in different sectors till 2020 (in CO2 equivalent)



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Fluorinated Greenhouse Gases Regulation

- Main objectives

- Minimise the emissions of Fluorinated Greenhouse Gases (F-GHG) at minimal marginal costs
- Discourage the development of new applications which would require future regulation
- Avoid potential regulatory loopholes (unregulated persistent F-GHG)
- Support the industry in developing long term reliable technologies and strategies
- Promote the implementation of Life Cycle Climate Performance
- Promote the development and marketing of environment-friendly technologies



Fluorinated Greenhouse Gases Regulation

- Strategy

- limit the use of F-GHG to the applications for which other products or techniques are not applicable or environmentally worse.
- Allow, when recognised necessary, time limited essential use exemptions upon technically justified requests.
- Implement emission reduction measures for the allowed applications of F-GHG.
- Consider voluntary commitments developed by industrial branches



Regulatory basis

Ordinance on Risk Reduction related to the Use of certain particularly dangerous Substances, Preparations and Articles (Ordinance on Risk Reduction related to Chemical Products (ORRChem) of 18 May 2005 (Rev. 7. November 2012)

- Annex 1.5 Substances Stable in the Atmosphere (SSA)
- Annex 2.3 Solvents
- Annex 2.9 Plastics
- Annex 2.10 Refrigerants
- Annex 2.11 Extinguishing agents
- Annex 2.12 Spray cans



Annex 1.5

Substances Stable in the Atmosphere (SSA)

- **Definition of SSA**

- Fluorinated VOC with vapour pressure of at least 0,1 mbar à 20°C or boiling point lower than 240°C à 1013,25 mbar, with T > 2 years
- SF6 and NF3

- **General ban with specific exemptions**

- defined in the annexes relating to specific sectors (RAC, foams, etc.)
- for semiconductor production processes with emission rate < 5%
- for feedstock uses in processes with emission rate < 0.5%
- for laboratory and research purposes
- for SF6 as far as necessary and emissions are kept as low as possible in high voltage components of imaging equipments, mini-switches,
 - SF6 in Mg – Al foundries until 2016 only
 - New exception is replacing those temporary exemptions granted until now for heat transfer or insulation fluids in welding machines and in testing and calibration baths



Annex 1.5

Substances Stable in the Atmosphere (SSA)

- **Mandatory communication to the authorities of imported quantities**
- **Voluntary Agreement regarding SF6 within the High voltage industry**
 - Exact consumptions and emissions yearly inventories
 - Maximum yearly emissions: < 1% and < 4 metric tonnes
 - Avoidance of emissions during production, operation, maintenance and disposal of high voltage switch equipments
 - Effective research on better solutions
 - Equipments containing SF6 only where and when no alternative are available



Annex 2.3

Solvents

- **General ban of SSA based solvents.**
- **Exemption for SSA** used for surface treatment in installations fulfilling the Clean Air Ordinance annex 2 figure 87 requirements (installation with automatic closing system opening only when SSA concentration in the installation's atmosphere is below 1g/m³; SSA emissions mass flux < 100g/h).
 - Prohibition of mixing,
 - take-back obligation,
 - feasibility assessment of recycling



Annex 2.9

Synthetic foams

- Ban of SSA in the non insulating foams.
- Ban of SSA containing foams as far as the required thermal insulation can be obtained otherwise in an environment friendly manner.

Annex 2.11

Extinguishing Agents

- SSA based agents already banned
- Exemptions for aircrafts, military vehicles, nuclear plants, and upon technically justifies requests in further similar situations safety of persons cannot be assured without the use of SSA



- Ban of plug in domestic appliances and MACs containing SSA (2005) :
 - Exemption when no alternative exist and containment measures are taken.
- Requirements for installations with more than 3 kg SSA refrigerants
 - mandatory maintenance booklet and general register
 - Yearly tightness control for ODS or SSA based installation (incl. MACs)



The existing mandatory authorisation for new RAC installations with 3 kg SSA or more replaced by a ban of placing on the market for :

- Air conditioning and heat pumps with a cooling capacity > 600 kW,
- VRF / VRV systems with > 40 evaporator and a cooling capacity > 80 kW,
- Commercial refrigeration with - cooling > 30 kW / + cooling > 40 kW;
- Combined +and - cooling with > 40 kW for + cooling and > 8 kW for - cooling;
- Industrial refrigeration with a cooling capacity > 400 kW
- Deep freezing with a cooling capacity > 100 kW,
- Ice rinks, except for temporary systems



Exemption can be granted for a particular system upon technically justifies requests if:

- in the current state of the art, it would not be possible for the standards SN EN 378-1:2008+A1:2010, SN EN 378-2:2008+A1:2009 and SN EN 378-3:2008 to be complied with without the use of a refrigerant stable in the atmosphere;

Rational:

The past mandatory authorisation scheme has allowed the natural refrigerants to better penetrate the Swiss market in such a way that the refrigeration industry association has evaluated itself that in these sectors, the cooling/ heating needs can be optimally covered with technologies using natural refrigerants



Annex 2.12

Spray cans

- **General ban of SSA**
- **exemptions for**
 - MDIs.
 - One component spray foams (safety reasons)
 - Cleaning of equipments under electric tension

Criteria:

- a. the state of the art is such that substitution is not possible;
- b. the quantity of substances stable in air used does not exceed the quantity required by the state of the art; and
- c. only those substances stable in air with the shortest possible lifetime in air are used.



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THANK YOU FOR YOUR ATTENTION



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