

ANNEX 4

GLOSSARY FOR INDUSTRIAL PROCESSES AND PRODUCT USE SECTOR

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This annex provides new definitions and abbreviations for terms used in this volume on Industrial Processes and Product Use (IPPU) Sector (Annex 4 Volume 3 of the *2019 Refinement*).

This annex should be used in conjunction with glossary in Annex 4 of Volume 3 of the *2006 IPCC Guidelines* and general glossary of the *2006 IPCC Guidelines* and the *2019 Refinement*.

Glossary (new)

ANODE EFFECT (HIGH VOLTAGE & LOW VOLTAGE ANODE EFFECT)

In primary aluminium and rare earth metals production (by fluoride electrolysis), an anode effect is a process upset condition where an insufficient amount of metal oxide (alumina in aluminium production, rare earth oxides in rare earth metal production) is dissolved in the electrolyte, resulting in the emission of PFC gases. This often causes voltage on industrial cells to be elevated above the normal operating range; however, PFC gases can also be generated in the absence of elevated voltage. A high voltage anode effect (HVAE) corresponds to emissions of PFCs gases when the cell voltage exceeds the specific voltage threshold defined for anode effects at the facility (e.g. >8 volts for aluminium production). A low voltage anode effect (LVAE) corresponds to emission of PFC gases in cases where the cell voltage doesn't exceed the voltage threshold (e.g. <8 volts for aluminium production).

ODS-SUBSTITUTES

Alternatives to Ozone Depleting Substances, for instance HFCs

RARE EARTH

Rare earth elements or rare earth metals (REM) are a group of 17 chemically similar metallic elements in the periodic table, i.e.: scandium (Sc), yttrium (Y) and the lanthanides – lanthanum (La), cerium (Ce), praseodymium (Pr), neodymium (Nd), promethium (Pm), samarium (Sm), europium (Eu), gadolinium (Gd), terbium (Tb), dysprosium (Dy), holmium (Ho), erbium (Er), thulium (Tm), ytterbium (Yb) and lutetium (Lu). 'Rare earths' typically refers to the rare earth oxide.

Abbreviation (new)

HVAE	High Voltage Anode Effect
LVAE	Low Voltage Anode Effect
PFC	Perfluorocarbon gases
RE	Rare Earth
REO	Rare Earth Oxide