What are anodes used for

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In both a galvanic cell and an electrolytic cell, the anode is the electrode at which the oxidation reaction occurs. In a galvanic cell the anode is the wire or plate having excess negative charge as a result of the oxidation reaction. In an electrolytic cell, the anode is the wire or plate upon which excess positive charge is imposed.[2] As a result of this, anions will tend to move towards the anode where they will undergo oxidation.

Historically, the anode of a galvanic cell was also known as the zincode because it was usually composed of zinc.[3][4]: pg. 209, 214

Conventional current depends not only on the direction the charge carriers move, but also the carriers" electric charge. The currents outside the device are usually carried by electrons in a metal conductor. Since electrons have a negative charge, the direction of electron flow is opposite to the direction of conventional current. Consequently, electrons leave the device through the anode and enter the device through the cathode.[citation needed]

In a discharging battery or galvanic cell (diagram on left), the anode is the negative terminal: it is where conventional current flows into the cell. This inward current is carried externally by electrons moving outwards.[citation needed]

In a recharging battery, or an electrolytic cell, the anode is the positive terminal imposed by an external source of potential difference. The current through a recharging battery is opposite to the direction of current during discharge; in other words, the electrode which was the cathode during battery discharge becomes the anode while the battery is recharging.[citation needed]

In battery engineering, it is common to designate one electrode of a rechargeable battery the anode and the other the cathode according to the roles the electrodes play when the battery is discharged. This is despite the fact that the roles are reversed when the battery is charged. When this is done, "anode" simply designates the negative terminal of the battery and "cathode" designates the positive terminal.

In a diode, the anode is the terminal represented by the tail of the arrow symbol (flat side of the triangle), where conventional current flows into the device. Note the electrode naming for diodes is always based on the direction of the forward current (that of the arrow, in which the current flows "most easily"), even for types such as Zener diodes or solar cells where the current of interest is the reverse current.[citation needed]

In vacuum tubes or gas-filled tubes, the anode is the terminal where current enters the tube.[citation needed]

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Since the later discovery of the electron, an easier to remember and more durably correct technically although historically false, etymology has been suggested: anode, from the Greek anodos, "way up", "the way (up) out of the cell (or other device) for electrons".[citation needed]

This process is widely used in metals refining. For example, in copper refining, copper anodes, an intermediate product from the furnaces, are electrolysed in an appropriate solution (such as sulfuric acid) to yield high purity (99.99%) cathodes. Copper cathodes produced using this method are also described as electrolytic copper.

Historically, when non-reactive anodes were desired for electrolysis, graphite (called plumbago in Faraday"s time) or platinum were chosen.[8] They were found to be some of the least reactive materials for anodes. Platinum erodes very slowly compared to other materials, and graphite crumbles and can produce carbon dioxide in aqueous solutions but otherwise does not participate in the reaction.[citation needed]