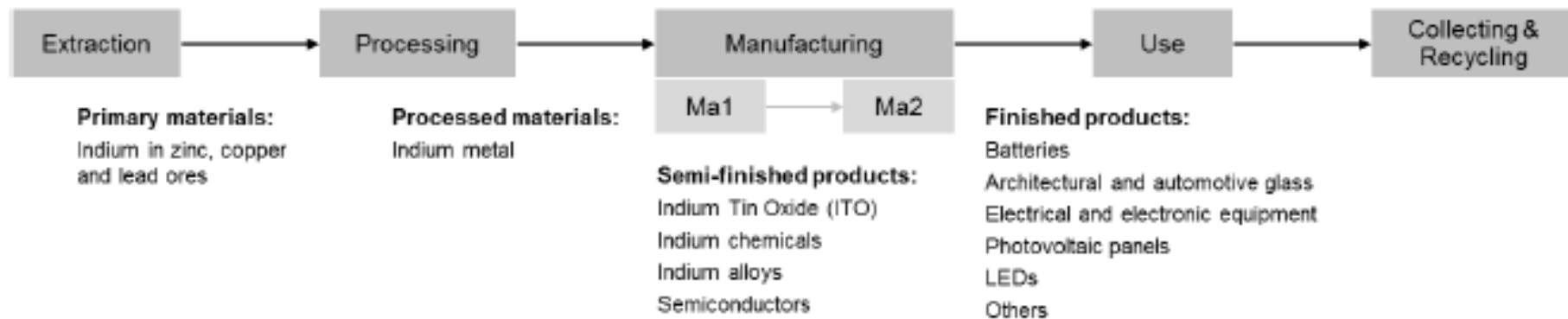


Indium

Indium occurs mainly at low concentrations in zinc ores, although small amounts also occur with copper and lead ores. There are many zinc refineries globally, but only about 25% are capable of extracting indium; one of these is in the EU, in France. In refineries that cannot recover indium from zinc ores, indium is lost as waste and as an impurity in zinc metal. Several EU manufacturers have refineries that recover small amounts of indium from secondary materials. Zinc refineries produce indium metal as a by-product. Indium is used to make a variety of chemicals and alloys, but the largest use globally is the manufacture of indium tin oxide (ITO), which is used to manufacture displays, mainly in Asia. The ITO coating process uses a relatively small proportion of the input ITO material; the rest is collected and functionally recycled. Indium metal is used in the EU to make alkaline batteries, architectural and automotive glass with ITO coatings, thin-film photovoltaics, solders and other alloys and for research. Most uses of indium are in electrical and electronic equipment as displays, semiconductors (e.g. light emitting diodes), solders, etc. Electrical equipment is manufactured in the EU mainly using imported components. At end of life, electrical equipment is either non-functionally recycled, exported or disposed of in the EU. The figure below presents the value chain of indium with the main uses.



โซ่คุณค่าของ Indium