**1. Raw Material Procurement (Pure Magnesium and Scrap)**

* **Purchase records**: Documentation of raw materials is essential for understanding material inputs that can affect indirect emissions (Scope 2) via transportation or production-related electricity use.
* **Supplier sustainability data**: Aligns with broader ESG reporting requirements for indirect impacts (Scope 3).
* **Material quality certificates**: Ensure proper inputs for calculating emissions.
* **Transportation and logistics records**: Relevant for capturing upstream indirect emissions related to fuel combustion (Scope 1).

**2. Scrap Sorting**

* **Inventory records**: Proper tracking of materials ensures that emissions tied to scrap handling are recorded.
* **Scrap quality assessments**: Affects waste management and potential future emissions from unusable scrap.
* **Waste disposal logs**: Relevant for tracking solid waste disposal and emissions tied to the disposal process.
* **Emission records**: Fugitive emissions during handling and sorting should be calculated using factors specified in Chapter 3.

**3. Furnace Operation (Melting and Alloying)**

* **Fuel consumption logs**: Record fuel usage for heating furnaces to estimate emissions under **Chapter 2**.
* **Temperature and energy logs**: Tracking energy use aligns with **Chapter 4**, covering emissions from industrial processes (e.g., alloying).
* **Emission monitoring**: CO2 and other combustion-related emissions must be recorded as per **Chapter 2**.
* **Sludge and slag management records**: Slag and other by-products could contribute to solid waste emissions (Chapter 5).

**4. Alloy Composition and Quality Control**

* **Alloy recipe records**: Documentation of alloying processes affects process-based emissions (e.g., CO2 from alloying), which is covered under **Chapter 4**.
* **Quality control reports**: Helps ensure accurate emission factors and process efficiencies.
* **Process emissions**: **Chapter 4** covers emissions from chemical reactions, like magnesium production involving carbonates.

**5. Casting**

* **Energy usage logs**: Covered under **Chapter 2** for tracking fuel consumption and under **Chapter 4** for the industrial processes involved in casting.
* **Casting emissions**: Relevant emissions from energy-intensive processes or fugitive emissions can be accounted for under **Chapter 4**.
* **Production records**: Tracking output aligns with the material flow tracking for Scope 1 and Scope 2 purposes.

**6. Cooling and Post-Processing**

* **Water usage logs**: **Chapter 5** covers emissions related to wastewater handling and treatment.
* **Wastewater treatment records**: Tracking water and wastewater emissions aligns with **Chapter 5** for managing GHGs related to water use.
* **Energy use for cooling systems**: Energy consumption during cooling relates to indirect Scope 2 emissions (**Chapter 7**).
* **Emission records**: If heat emissions or other pollutants occur during cooling, these should be tracked as per **Chapter 5** guidelines.

**7. Finished Product (Magnesium Alloy Ingots)**

* **Inventory records**: Ensure that all finished products are properly documented for energy use and industrial process emissions (Chapter 4).
* **Shipping and logistics records**: If indirect emissions (Scope 2 or 3) from product transportation are tracked, refer to **Chapter 7**.
* **Product certification**: Align with process standards under **Chapter 4** to ensure efficient production practices.

**8. Waste Management**

* **Sludge and slag handling records**: As per **Chapter 5**, waste sludge and slag must be managed and reported for methane or other emissions.
* **Waste recycling logs**: Recycling activities can offset emissions and should be accounted for under **Chapter 5**.
* **Wastewater discharge records**: Ensuring proper wastewater treatment and discharge follows the guidelines in **Chapter 5**, including emissions from methane or nitrous oxide.

**9. Energy and Emissions Monitoring (Scope 1 & 2)**

* **Facility-wide energy use**: As per **Chapter 2**, all fuel combustion emissions must be documented for Scope 1 reporting.
* **Emission inventory**: Align with **Chapter 2** for Scope 1 direct emissions and **Chapter 7** for electricity-related emissions (Scope 2).
* **Emission control systems**: Maintenance of equipment such as scrubbers or filters follows **Chapter 8** to ensure that emissions are minimized and properly controlled.