**Competency Statements template: AusIMM CP - Metallurgy Discipline**

This template is to be completed by applicants seeking AusIMM Chartered Professional accreditation and/or RPEQ assessment in the Discipline of Metallurgy to demonstrate the relevant competencies have been achieved in accordance with the [Chartered Professional Regulations and Guideline 3: Areas of Practice – Metallurgy](https://ausimm.com/wp-content/uploads/2018/10/chartered-professional-regulations-guidelines2-2018v2-1.pdf).

|  |  |
| --- | --- |
| **Applicant Name** |  |
| **AusIMM Membership No** |  |

**Section 1: What did you study?**

List your tertiary qualification(s) relevant to the discipline of Metallurgy (Metallurgy/Mineral Processing/Chemical Engineering). Applicants without a relevant primary degree must list all key coursework that supports this application:

**Table 1.1: Qualifications**

|  |  |  |
| --- | --- | --- |
| **Qualification** | **Institution** | **Year of Award** |
|  |  |  |
|  |  |  |
|  |  |  |
| *Add/delete rows as required* |  |  |

List any other (non-AusIMM) memberships of significance/relevance or relevant awards received:

**Table 1.2: Memberships and Awards**

|  |  |  |
| --- | --- | --- |
| **Membership of other relevant organisation** | **Institution** | **Year of Award** |
| *e.g. Member* |  |  |
|  |  |  |
| *Add/delete rows as required* |  |  |

**Section 2: How have you applied this knowledge and where did you do this?**

Summarise your work experience relevant to the Discipline of Metallurgy, including the location, employer and role description:

**Table 2: Work experience in Discipline**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **From** | **To** | **Location and Commodity/ies** | **Employer** | **Role(s)** |
| *Year* | *Year* | *e.g. Perth, Iron Ore* | *Company name or*  *Consultant at Company name* | *Role title and short description* |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  | *Add new rows if required* |

**Section 3: What competencies have you gained from study and work to support this application?**

Please detail the **skills/competencies** you have gained from your work and study in Table 3 below.

Use this guide to rate your level of competency in each applicable area of practice:

|  |  |
| --- | --- |
| **Level of competency** | **What this means for the CP applicant** |
| B – Basic | Can perform tasks with some supervision |
| M – Medium | Can perform tasks unsupervised |
| A – Advanced | Able to troubleshoot and teach or supervise others |
| E – Expert | At the top of the field, highly knowledgeable, a ‘go-to’ person/expert |

If your career is longer than 10 years, please concentrate on the last 10 years. Assessors need to see sufficient (and a range of) skills/competencies to ensure that you have the required experience in the Discipline.

In addition to detailing your competencies in the Metallurgy Discipline Areas of Practice (as detailed below, extracted from [Guideline 3: Areas of Practice – Metallurgy](https://ausimm.com/wp-content/uploads/2018/10/chartered-professional-regulations-guidelines2-2018v2-1.pdf#page=22)), please include any other competencies you have gained that you believe are relevant to this Chartered Professional Discipline.

**You are not required to respond to every Area of Practice; only those relevant to you.**

**Table 3: Competencies**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Metallurgy Discipline**  **Area of Practice** | **Location/Role where skill/competency gained** | **Skill/s developed related to this Area of Practice** | **Period of practice (years)** | **Competency Level**  **(B, M, A or E)** |
| *e.g. Flow sheet development, plant design and commissioning* | *Company name, Country* | *Used test work to design a mineral development for X, including…* | *8* | *A* |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  | *Add new rows if required* |  |  |

**Areas of Practice: Metallurgy**

A metallurgist is a professional who either investigates, plans, designs or directly controls the process of converting minerals produced by mining into primary commodities of economic value in sufficient quantity to be used in the manufacture of economic goods

The following areas of practice are offered as examples of experience that is required for registration as a Chartered Professional (Metallurgy). Professional experience need not be limited to those listed and applications will be considered for appropriate areas of practice in addition to those listed below.

1. *Process investigation and test work:*
   1. a minimum of five years’ experience of laboratory and pilot plant investigations using mineral processes
   2. extensive experience in undertaking process investigation and development for mineral projects
   3. experience in testing and developing new process technology
2. *Flow sheet development, plant design and commissioning:*
   1. a metallurgist who uses the results of process investigation and test work to design a flow sheet for a planned mineral development
   2. a metallurgist with appropriate experience to select and size suitable equipment, and to prepare materials balances for a proposed or existing operation
   3. usually a person who has had extensive practical process plant operating experience and/or extensive commissioning experience on which to base their design recommendations
3. *Project appraisal.*

*Note: This specialisation may not include the economic valuation of existing and proposed metallurgical operations.*

* 1. the technical assessment and evaluation of current and proposed mineral treatment operations such as conducting Due Diligences and Independent Technical Reviews (ITRs)
  2. a person with sufficiently broad and relevant experience to qualify as the author of a Technical Report, as defined in the VALMIN Code (1998) (as modified from time to time), on an exploration property includes supporting JORC Resource and Reserve statements and NI43-101 reports

1. *Project planning and management:*
   1. Extensive experience in the planning, design, implementation and commissioning of new processing plants, or in the upgrading/optimisation of existing processing plants.
2. *Project Studies.*
   1. Includes: experiences in studies such as Conceptual, Scoping, Pre-Feasibility and Feasibility, including testwork evaluation, flowsheet selection, process modelling, mass and water balances, design criteria, equipment sizing and selection, development of operating and capital costs, provision of inputs for financial modelling, and technical report preparation.
3. *Operational management:* 
   1. hands-on experience of plant operation and management
   2. working as a mill or smelter superintendent
   3. experience gained in trouble-shooting operations
4. *Mineral processing*:
   1. the application of mineral processing, such as, but not limited to, flotation, magnetic separation, electrical separation, gravity, sorting, classification and cyanidation in the testing laboratory, pilot plant, or production plant
   2. experience may have been gained in the treatment of, but not limited to, base and precious metal ores, uranium ores, iron ores, mineral sands, alloying metal ores (manganese, chromium, tungsten, molybdenum, etc.), rare earth ores and industrial minerals such as graphite and mineral sands
5. *Hydrometallurgy (including electrowinning, leaching and bacterial action):*
   1. the application of hydrometallurgy to mineral processing operations, in the testing laboratory, pilot plant, or production plant
   2. may have chemical engineering qualifications rather than metallurgy
   3. experience gained in the treatment of uranium, copper, nickel and rare earth ores, but not gold cyanidation
6. *Roasting, smelting and refining:* 
   1. experienced in pyrometallurgical or electrometallurgical aspects of mineral processing
   2. experience may be in laboratory investigations plant/ process design or in operations, or in all of these
7. *Comminution and sizing.* 
   1. a metallurgist who advises on aspects of size reduction including crushing, grinding and sizing in a production plant or staged crushing, sieving, cyclosizing/laser sizing in a laboratory
   2. the person may have spent most of their career working in this field of processing
8. *Materials handling:*
   1. experience in materials handling by conveyor, elevator, chutes, pumped slurry, thickening, tailings management and storage etc.
   2. qualifications may be in metallurgy or in chemical or mechanical engineering
9. *Coal washing.* A metallurgist with experience in the testwork, development, design, commissioning and/or operation of coal washeries.
10. *Infrastructure management:*
    1. the assessment and/or the design, construction and/or management of power and water supply facilities and/or tailings storage facilities
    2. qualifications may be in metallurgy, but may also be in other fields of engineering
11. *Laboratory testing methods.*
    1. Includes knowledge/understanding of basic mineral processing laboratory techniques such as Work Index determination, breakage factors, locked cycle flotation testing, variability testing, leaching, effect of gangue minerals, dewatering and mineralogical techniques such as XRD and QEMSCAN/MLA for liberation and quantitative mineralogical analysis.
12. *Geochemical Analytical Methods.*
    1. Includes knowledge of basic geochemical techniques, particularly where they apply to metallurgical assays of head, tailings and concentrate samples. Examples include XRF, XRD, Wet Chemistry Methods, ICP-OES, ICP-MS, AAS etc.
13. *Safety, health and risk*. Implementation of workplace health and safety systems that provide for:
    1. hazard identification (particularly in the usage of chemicals, heat, pressure and electromagnetic/electrostatic fields)
    2. risk assessment
    3. implementation of controls
    4. effective monitoring
    5. comprehensive review.

This should be undertaken with reference to appropriate codes and guidelines.