System description:

The system includes the following main components and component boundaries and is further illustrated in the reference P&ID (F-2001). The vendor must also refer to the Local Requirements Section for details regarding site/facility-specific considerations such as utility condition/availability, control platform, validation requirements etc.

- 1 main vessel:
  - Stationary stainless steel pressure vessel with a two-zone heating/cooling jacket.
  - The top head of the vessel (referred to as the lid) will be removable.
  - The vessel contains an agitator system in the lid for product mixing and heat transfer.
  - The vessel contains a rotor-stator homogenizer in the bottom for induction, size reduction, dispersion, and incorporation.

- 1 support vessel:
  - Stationary stainless steel pressure vessel with a two-zone heating/cooling jacket and a removable lid.
  - The vessels contain an agitator in the lid for product mixing and heat transfer.
  - The vessels contain a homogenizer in the bottom for induction, size reduction, dispersion, and incorporation.
- 1 premix support vessel
  - Stationary stainless steel pressure vessel with a two-zone heating/cooling jacket and a bolted, flanged lid.
  - The vessel contains a rotor-stator homogenizer in the bottom for induction, size reduction, dispersion, and incorporation.
  - This is usually used in systems where the main vessel is 5000 kg or larger.
- 1 transfer system:
  - Positive displacement pump for each vessel in the system, serving both recirculation and transfer duties.
  - Pumps are for controlled transfer of premixes and final mass.
  - Transfer and induction via vacuum are required.
- Temperature control system:
  - Uses plant-provided utilities to generate skid-local heating and cooling loops.
  - Separate circuits or units for each vessel.
- Piping manifolds:
  - CIP cleaning
  - Product induction
  - Recirculation and -transfer from the support and premix support vessels to the main vessel and from the premix support vessel to the support vessel.
  - Transfer from an auxiliary vessel to any of the three stationary vessels
  - Local utility supply/return
- Process Control System:
  - PLC with HMI for controlling the system and its components. The HMI can be used by the operator for settings of process parameters. Multiple user levels will be necessary for engineer and technician interfacing in addition to operations.