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give an isa 88 control recipe of a batch production of aspirin known as acetylsalicylic acid. The physical structure consists of a reactor, a crystallizer, a centrifuge and a dryer. Educts are Acetic anhydride, Salicylic acid, and sulphuric acid as catalyst. Products are acetylsalicylic acid and acetic acid. Drying should happen at 90 °C.



Here's an example of an ISA 88 control recipe for the batch production of aspirin using a reactor, a crystallizer, a centrifuge, and a dryer:



Recipe Name: Aspirin Production

Equipment:

- Reactor
- Crystallizer
- Centrifuge
- Dryer

Ingredients:

- Acetic anhydride (500 kg)
- Salicylic acid (500 kg)
- Sulfuric acid (10 kg)

Procedure:

1. Charge the reactor with 500 kg of acetic anhydride and 10 kg of sulfuric acid.
2. Start heating the reactor to 60 °C.
3. Slowly add 500 kg of salicylic acid to the reactor while stirring.
4. Maintain the temperature of the reactor at 60 °C and stir the contents for 1 hour.
5. Cool the contents of the reactor to 30 °C and transfer the mixture to the crystallizer.
6. Seed the crystallizer with a small amount of acetylsalicylic acid crystals to initiate crystallization.
7. Maintain the temperature of the crystallizer at 30 °C and stir the contents until the desired crystal size is achieved.
8. Transfer the contents of the crystallizer to the centrifuge to separate the crystals from the mother liquor.
9. Wash the crystals with a small amount of chilled water to remove any impurities.
10. Transfer the crystals to the dryer and dry at 90 °C until the desired moisture content is achieved.
11. Transfer the dried crystals to a storage container and package for shipping.

This is just an example, and the actual control recipe may vary depending on the specific equipment and process used in the production of aspirin. It is important to follow the ISA 88 standard and ensure that the control recipe is properly documented, tested, and validated to ensure consistent and safe production of the product.