

PTR-107

Aquarius™ Protect film coating systems

Reconstitution Instructions

Materials

- Aquarius Protect film coating systems
- Water, preferably deionized or distilled, ambient temperature
- Solids: Pigmented, 15–20% (17.5% recommended)
 Clear: 10–15% (12.5% recommended)

Equipment

- Mixing vessel with 25–35% greater height than the liquid level; diameter of the mixing vessel should be approximately 75–100% of the height of the liquid
- Variable speed mixer (100–2000 rpm)
- Propeller stirrer

Preparation Guidelines

1. Weigh the required quantity of water into the mixing vessel.
2. Weigh out the required quantity of Aquarius film coating system.
3. Center the propeller stirrer in the mixing vessel so that it is as close to the bottom as possible (see Figure 1a).
4. Set the mixer to the fastest possible speed which maintains a vortex without drawing air into the water.
5. Add the Aquarius film coating system powder to the vortex as quickly as possible, avoiding flotation of the powder and increasing the mixer speed as necessary to maintain the vortex (see Figure 1b).
6. Maintain the mixer speed to give gentle mixing throughout the 60-minute reconstitution period (see Figure 1c).

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Figure 1. a: Propeller stirrer properly positioned in mixing vessel. **b:** Addition of Aquarius™ film coating system powder to the water. **c:** Mixing for 60 minutes

Suspension Handling

Coating suspensions made with Aquarius™ film coating systems should be stirred throughout the coating process.

- After the dispersion, pass through a 20-mesh screen before commencing spraying.
- During spraying, we usually have the nozzle (at least a 1.2 mm orifice, but better yet, a 1.5 mm orifice) set up so that periodically (perhaps every 60 seconds) the needle valve closes briefly to make sure there is no build up in the opening.
- The process parameters should be set so that the bed temperature should be in the range of about 40 to 42°C. We typically start off with an inlet temperature of 60-65°C

Coating Parameters

Coating Tablets with Aquarius™ Protect Film Coating Systems

Coating Parameter	Vector LDCS with 2.5 l pan	O'Hara LabCoat IIX with 15" pan	O'Hara LabCoat IIX with 19" pan	O'Hara LabCoat IIX with 24" pan	O'Hara LabCoat IIX with 30" pan	Accela Cota with 60" pan
Spray guns	1 Schlick	1 Schlick	1 Schlick	2 Schlick	3 Schlick	5 Spraying Systems
Pan loading (kg)	1.5–2.0	2.0–2.5	7.0–8.0	17.0–18.0	37.5–42.5	250–275
Inlet air temperature (°C)	60–65	60–65	60–65	60–65	60–65	60–65
Product temperature (°C)	40–42	40–42	40–42	40–42	40–42	40–42
Exhaust temperature (°C)	42–44	42–44	42–44	42–44	42–44	42–44
Process air volume (m ³ h ⁻¹)	110–120	280–300	295–305	410–440	510–540	4000–4100
(cfm)	60–70	170–180	175–180	240–260	300–320	2375–2400
Atomizing air pressure (bar)	1.6–1.8	1.6–1.8	1.6–1.8	1.6–1.8	1.6–1.8	2.3–2.5
Pattern air pressure (bar)	1.8–2.0	1.8–2.0	2.0–2.2	2.0–2.2	2.0–2.2	2.5–2.7
Pan speed (rpm)	20–22	22–27	15–17	11–13	9–11	4–6
Spray rate (g min ⁻¹)	12–14	20–25	35–40	58–64	78–84	540–575
Coating solids (% w/w)	17.5–20.0	17.5–20.0	17.5–20.0	17.5–20.0	17.5–20.0	17.5–20.0

Usage

In general, Aquarius film coating systems can be used at varying solids contents, depending on the particular coating formulation being used. When using Aquarius Protect film coating systems, it is common to observe small undissolved particles (i.e., micronized wax) in the dispersion. This is normal and does not affect the coating.