The PHOS-CheK® Hopper Mixer System is used to mix PHOS-CheK® dry powder retardants packaged in 50-pund pails or 25-pound bags. The system is ideally suited for remote operations where transportation and handling of liquid retardants is logistically not feasible.

**Operational Theory:**

The Hopper mixer incorporates the same principle as the eductor mixer used with our semi-bulk (Phos-Bin®) and bulk dry powder retardant mixing operations.

- Water passing through the valve creates a venturi effect that draws the dry powder concentrate into the water stream.

- The specified mix-ratio is easily maintained through minimal adjustments of the suction valve that regulates the dry powder flow.

- The Hopper Mixer is capable of mixing at 300 gals/min (US). The water-bypass line can be used to increase the mixing capacity.
Hopper Mixer

Operating Procedure:

Proportional Procedures:

1. **Start** mix pump, make sure the 2 inch water bypass line valve is in a close position (use this in peak demand periods).

2. **Empty** pails or bags into Hopper Mixer and slowly open powder valve, make sure that your water is passing thru the Hopper.

3. **Slowly open** powder valve to desired mixflow ratio. Water passing thru the Hopper Mixer will create a suction effect giving you the appropriate blend once the powder valve has been set.

4. **Monitor** water meter for the number of pails or bags required per water volume.

5. **Periodically check** the salt content of the retardant mixture with refractometer, adjust powder valve or water volume when necessary.

6. To ensure a homogenous quality product, **always re-circulate** as soon as mixing begins.

7. During peak demand periods open the bypass line, this will increase the water flow and mixing process.

8. Loading of aircraft may begin once ample of premix storage on hand.

Note: **Operator training will be provided at the time of base installation and during subsequent spring base opening.**

Maintenance Requirements:

**S.E.A.T Blender Cleaning Procedures:**

1. **Regularly check** the powder valve for any type of blockages that can impede the powder flow.

2. **Clean the mixer valve after every four hours of operation,** this will help prevent any blockages.

3. **The entire blender unit must be completely flushed and drained** at the end of each operational season.

4. **Always place the cover on the Hopper Unit when it is not in use.**

Note: **It is good standard practice to close all tank valves after hours and whenever the tanker base is not in use or during slow periods or end of fire season.**

For more information, contact any of our worldwide wildfire offices or visit us at www.phoschek.com:
Eductor Mixer

FOR MIXING
Of
PHOS-CHEK® DRY POWDER FIRE RETARDANTS & GELS

The PHOS-CHEK® Eductor Mixer System mixes PHOS-CHEK® gum thickened dry retardants to a range of desired mix-ratios with only minimal requirement for adjustment. Accuracy and operation of the eductor system is not hampered by electrical power failures.

Operational Theory:
The Eductor Mixer works on a venturi effect by water passing through the main 4” line and creating suction for the 2 ½” powder inlet.

Only minor manual adjustments to the ¾-inch vacuum gauge which regulates powder suction is required to ensure retardant mixing at the desired mix ratio.
Eductor Mixer

Operating Procedure:

Eductor Mixing Procedures:

1. Fully open vacuum valve on mixer.
2. Fully open the 4-inch water supply valve at the mixer.
3. Once water flow begins, slowly close ¾” vacuum valve to begin powder suction.
4. Check the salt content of the retardant mixture via end of barrel with refractometer while mixing.
5. Manually open/close vacuum valve if adjustments are needed to meet mixing specifications.
6. Before shut down, open vacuum valve first to full open position, this will keep water from back flushing into retardant powder lines.
7. If a back occurs, the system will have to taken apart and completely rinsed and dried before continuing.

Note: Operator training will be provided at the time of base installation and during subsequent spring base opening.

Maintenance Requirements:

Eductor Cleaning Procedures:

1. It is suggested to wash the eductor out once a month or after 8 hours of use. This process will help prevent any caking, buildup or plugging problems.
2. Check for damage or loosen parts on a daily basis.
3. The entire unit must be completely flushed and drained and sealed at the end of each operational season.

Note: It is good standard practice to alleviate moisture from collecting inside the powder hose and prove.

For more information, contact any of our worldwide wildfire offices or visit us at www.phoschek.com:
Batch Mixer

FOR MIXING
Of
PHOS-CHEK® DRY POWDER FIRE RETARDANTS

The PHOS-CHEK® Batch Mixer is used to mix PHOS-CHEK® dry powder fire retardant concentrates, which are packaged in bulk-bags (Super-Sacks). This System is based on a simple stirring concept in which a blade mixer blends dry powder and water into a homogeneous mixture.

(Water gallons are measured by your water meter or water mark on tank depending on product type being used)

Operational Theory:

A bulk-bag (or super-sac) with a pre-measured amount of dry powder retardant concentrate and a corresponding amount of water are loaded into the Batch Mixer.

A blade mixer homogenizes the retardant solution in a mere four to five minutes.

G75 - 1907 gallons / ton
D75 - 1786 gallons / ton
259 - 1869 gallons / ton

The air-blower is then also activated as the bag gets stationed over the tank ready for pouring. The bag is then opened from the bottom of bag releasing the product into tank mixing the product into a homogenous solution.
**Batch Mixer**

**Operating Procedure:**

1. **Proportional Procedures:**
   - Fill the Batch Mixer with the required amount of water corresponding to a pre-determined level on the side of the mixer. (sight gauge).

2. **Start** the blade mixer to commence circulation inside the vessel.

3. Place the bulk bag above the Batch Mixer and pull the bottom strings to empty the dry powder concentrate into the vessel.

4. A Homogeneous retardant mixture is achieved after four to five minutes of mixing action.

5. Check the salt content of the retardant mixture via refractometer.

6. When the batch has tested to be “in spec”, it can be transferred to the storage tank, Repeat process for new batches.

7. Loading of aircraft may begin once ample of premix storage on hand.

   **Note:** Operator training will be provided at the time of base installation and during subsequent spring base opening.

**Maintenance Requirements:**

**Batch Mixer Cleaning Procedures:**

1. Periodically check the dust-collector and empty as needed.

2. Perform routine safety inspections daily.

   **Note:** It is good standard practice to close all tank valves after hours and whenever the tanker base is not in use or during slow periods or end of fire season.

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For more information, contact any of our worldwide wildfire offices or visit us at www.phoschek.com:
Phos-Chek LC Recirculation Systems consist of both, a vertical and horizontal sparger that can be operated individually or together with the switch of a valve.

1. The vertical system consists of a 4” PVC pipe at one end of the tank and another in the middle. Each up right constains 4 holes in a spiral formation maximizing overall tank circulation.
   - First hole is located directly at the bottom of the 90° elbow aimed toward the bottom of tank onto the inlet side of tank which eliminates buildup underneath recirc pipe.
   - Second hole is located about 24” from bottom of pipe directed at 45° toward opposite end of tank.
   - Third hole is located in the center of pipe aimed parallel with the sides of the tank pointed toward the opposite end.
   - Fourth hole is located 12” from the top aimed at an opposite 45° as the second hole.

2. The horizontal recirc system is a 4” PVC pipe that runs the length of the tank.
   - The horizontal recirc is offset about 24” inches from the center with 1/2” holes every 18”.
   - The holes are drilled facing toward the bottom of tank which creates a rolling effect.