

Understanding Vanadium Stains

What is Vanadium?

Vanadium is a naturally occurring element found in cream coloured clays. Its presence can vary significantly within a clay pit or between different pits.

Appearance and Impact

When vanadium appears on a fired brick, it is neither permanent nor harmful. It is not considered a defect and can be easily removed when handled correctly. This is a common occurrence in the brick manufacturing industry and is well-documented in industry resources, such as the Think Brick cleaning manual.

Detection Challenges

Detecting vanadium during the manufacturing process is challenging because it typically becomes visible only when exposed to slightly acidic conditions – such as rain or standard brick cleaning – usually after the bricks are on-site.

Removal Techniques

Vanadium stains are often generated by the use of too strong a concentration of hydrochloric acid during the initial cleaning process or from excessive water penetration. Here are some effective removal techniques:

- **Sodium Hypochlorite:** Spray or brush onto the stain without pre-wetting, allow it to stand until the stain disappears, then rinse.
- **Potassium Hydroxide or Sodium Hydroxide (Caustic Soda):** Mix 150 grams per litre of water, apply to the stained bricks, leave until the stain disappears, then wash off.
- **Oxalic Acid:** Mix 20 to 40 grams per litre of water, apply to the stained bricks without pre-wetting, wait for the stain to disappear, then neutralize with a solution of 15 grams of sodium bicarbonate per litre of water.

Preventative Measures

To minimise the occurrence of vanadium stains:

- Ensure proper pre-wetting of bricks before applying cleaning solutions.
- Avoid using overly strong acid concentrations.
- Implement good construction practices to prevent excessive water penetration.

For more detailed guidance, refer to the Think Brick TBA 13 – Clay Masonry Cleaning Manual or consult with accredited brick cleaners.



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