Examining Manufactured Esterification, Homemade Esterification, and Non-Corroding Coating as Viable Solutions to Fatberg Formation

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Fatbergs are deposits of fats, oils, and greases that are formed through the same process by which soap is made. They are responsible for major sewer blockages throughout the world, and require millions of dollars in tools and labor to remove. As such, the purpose of this experiment is to find a way to eliminate existing fatbergs and prevent their formation. A pipeline simulation was created with half of the inside covered in a non-corroding coating to examine the possibility of that as a fatberg deterrent. After a period of approximately one month, the system was examined and evidence of formation was discovered in both sides of the tank. Though there were more spots on the non-coated side, the overall outcome is too small to properly determine the role of the non-corroding coating. Other efforts were focused on destroying existing fatbergs. Enzymatic drain cleaners and a homemade mixture were applied to brown soap, a product with properties similar to fatbergs. These substances are intended to incite esterification, which is the reaction opposite to that which makes fatbergs and soap. The results demonstrated that both the manufactured and homemade esterification processes succeeded in reducing the mass of the brown soap with statistical significance, the homemade mixture notably more than the enzymatic drain cleaner. These findings reveal a future possibility for further testing, and a potential for fatberg reduction that could be achieved with these products.

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