

TMT 15[®] - Precipitating Silver from Wastewater

Case Study / Info 34 E

TMT 15[®] is widely used in various industries that produce liquid wastes containing heavy metals. The heavy metals are usually removed from the wastewater by precipitation and flocculation.

Individual examples demonstrate the effectiveness of treatment methods in practice, and should give anyone interested enough background to perform tests to check the suitability of TMT 15[®] for their own particular wastewater composition. We would be happy to provide TMT 15[®] in sample amounts. Our Application Technology department is also prepared to provide assistance in finding solutions.

Photographic concentrate / Silverthiosulfate complex

Treatment process:

- Collect 1 l of wastewater (3 g Ag/l, 200 g Na₂S₂O₃ x 5 H₂O/l, pH 4),
- adjust to pH 8 using 36 ml of 20% caustic soda
- within 30 minutes, add 18 ml of TMT 15[®] while stirring,
- add 20 ml of 0.1% strong cationic flocculation aid (such as Praestol 655 BC),
- stir rapidly for 1 minute, slowly for 15 minutes (pH 8.4),
- separate green-colored, coarsely flocculent precipitate by filtering.

The filtrate only contained 0.3 mg Ag/l

Remarks

TMT 15[®] requirement: 6 l TMT 15[®] per kg Silver (Ag)

The requirement can also be determined using the calculations found at www.tmt15.com.

For Silver precipitation, it is usually necessary to adjust the pH value to the range 7–10 after the required chemicals have been added. To some extent, the precipitation result and residual metal content is strongly dependent on the pH value, depending on the type and concentration of com-plexing agents.

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Product Information

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Available examples

TMT Info No.	Heavy metal	Complexing agent	Branch
TMT Info 30	Copper (Cu)	Tetrammine	Printed circuit board Manufacture
TMT Info 31	Copper (Cu)	EDTA complex	Printed circuit board Manufacture
TMT Info 32	Cadmium (Cd)	Tetrammine	Electroplating
TMT Info 33	Silver (Ag)	Thiosulfate complex	Photografic rinse water
TMT Info 34	Silver (Ag)	Thiosulfate complex	Photografic concentrate
TMT Info 35	Mercury (Hg)	Chlorocomplex	Chemical industry
TMT Info 36	Nickel (Ni)	Polyamine complex	Electroplating
TMT Info 37	Lead (Pb)	Cataphoretic electro-deposition of paint	Automotive industry
TMT Info 38	Copper (Cu) & Nickel (Ni)	Actual wastewater	Printed circuit board Manufacture

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