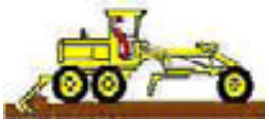
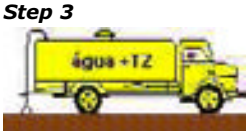
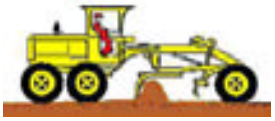
Critical application steps of TZ for successful performance	**Illustration**	**Equipment required of road contractor for successful application of TZ**	***Possible problems***
1) Scarify soil to the depth and width defined for stabilization in project specifications. Remove large stones, roots and trash from the loosened soil.	*Step1* 	Road grader or farm tractor with scarifier teeth. A scarifier mounted at the rear is ideal.	Road grader with few or no scarifying teeth. Not scarifying to the specified depth. Stones greater than 5 cm (2 inches) left in road surfaces.
2) Pulverize the scarified soil until the mass is broken down and homogenous. Do not pre-wet the soil before applying the water +TZ solution.	***Step 2*** 	Farm tractor with roto-tiller, pulverizer or other mixing equipment, such as discs, etc.	Tractor and mixing equipment in bad condition. Equipment not able to scarify or mix to the specified depth. Large stones left in soil layer during pulverization.
3) Spray the solution (water +TZ) uniformly over the pulverized soil. Use the forms supplied to calculate quantities of stabilizer and water to be used.	***Step 3*** 	Water truck with distributor bar or 'duck's bill' nozzle mounted front or back. If possible, use a pump with motor to suction and to distribute the solution under pressure. Tank volume should be 7000 to 12000 liters.	TZ quantity insufficient. Product application not uniform. Bars with plugged or corroded holes. Uneven velocity. Starting and stopping on the road section. Gravity feed tank on inclines.
4) Mix the soil wetted with the solution of water + TZ to the full depth scarified. Continue mixing until uniform color is achieved.	*Step 4* 	Farm tractor with roto-tiller, pulverizer or other mixing equipment, such as discs, etc.	Mixing is not uniform. The equipment does not reach an adequate depth. Excessive mixing resulting in loss of water by evaporation. Soil too wet.
5) Compact the treated soil layer to the full density specified. Maximum depth for each treated layer should not exceed 20 cm. Avoid hole formation on surface.	***Step 5*** 	A `sheep's foot' roller compactor of more than 12 tons. Vibration is preferred. On initial passes.	Soil moisture inadequate. Roller compactor is too light. Vibrating roller that doesn't function well. Roller feet or compactor selection not appropriate for soil type.
6) Shape the surface of the treated layer to meet design requirements for drainage and slope.	***Step 6*** 	Road grader with blade adjustment for pitch, angle and side to side elevation.	Excessive variation in thickness of the treated layer. Loose material left in ridges on the surface. Blade gouges or wheel depressions. Not crowning and sloping per design specifications.
7) Finish the surface of the treated layer using appropriate equipment and technique. Leave the surface smooth and free from holes, gouges, ridges or depressions to promote complete drainage.	***Step 7*** 	12 ton or heavier, self-propelled smooth roller compactor. A rubber tired compactor should be used with soils of high plasticity.	Compaction % inadequate. Marks of machine or defects on the surface of treated layer left. The roller compactor is too light. Failure to overlap roller passes by 30% of the roller width.