


TOSI®-Troubleshooting Guide: What to do in case of...

TOSI Test Results	Rating	Description	Possible Reasons for TOSI Test Results	Immediate corrective action (to be conducted by CSSD personnel)	Proposal for optimisation of relevant process parameters (typically requires Service Engineer)
	0	Optimum Result Test soil is completely dissolved, no test soil residuals are left	Optimum result	not necessary	not necessary
	1	Negative Result 1 TOSI is completely rinsed = no water soluble proteins visible, but small amount of fibrin residuals remain	a) Incorrectly positioned or blocked TOSI b) Cleaning time too short c) Temperature not optimal d) Dosage of detergent too low	a) Repeat test protocol with small load b) Investigate cleaning time c) Investigate cleaning temperature d) Check dosage/concentration of detergent	a) Consider other possible reasons b) Adjust cleaning time to type of detergent or extend time c) Adjust cleaning temperature to type of detergent d) Increase dosage
	2	Negative Result 2 TOSI is completely rinsed = no water soluble proteins visible, but most or all of the fibrin layer remains	a) Incorrectly positioned or blocked TOSI b) Overloading/incorrect loading c) Cleaning time too short d) Temperature not optimal e) Dosage of detergent too low f) Insufficient detergent efficiency	a) Repeat test protocol with small load b) Repeat test protocol with correct load c) Investigate cleaning time d) Investigate cleaning temperature e) Check dosage/reservoir of detergent f) Check storage conditions and expiry date of detergent	a) Consider other possible reasons b) Consider other possible reasons c) Adjust cleaning time to type of detergent or extend time d) Adjust cleaning temperature to type of detergent e) Increase dosage or refill/replace reservoir f) Replace incorrectly stored or expired detergent
	3	Negative Result 3 TOSI is incompletely rinsed = small residuals of the water soluble (red) proteins are visible. None or only a small amount of the fibrin layer remains visible	a) Incorrectly positioned or blocked TOSI b) Overloading/incorrect loading c) Non-uniform water distribution d) Blocked spray system e) Blocked filter f) Insufficient water pressure g) Foaming residuals left over from pre-cleaning or ultrasonic bath	a) Repeat test protocol with small load b) Repeat test protocol with correct load c) Check load + installation of spray system d) Check movement of spray arms and clean e) Check filter f) Refer to Service Engineer g) Rinse instruments more carefully after pre-cleaning or ultrasonic treatment	a) Consider other possible reasons b) Consider other possible reasons c) Install spray system correctly or replace by suitable one d) Replace defective spray arms if necessary e) Replace filter if necessary f) Check/increase water pressure, check function of pump g) Not applicable
	4	Negative Result 4 TOSI is completely rinsed = significant residuals of water soluble (red) proteins are visible. In addition, most or all of the fibrin layer remains	a)-g) same as rating 3 but more distinct h) Defective pump i) Loss of pressure or other defect j) Incorrect temperature for detergent k) Failure of chemistry in use	a)-g) same as rating 3 h) Refer to Service Engineer i) Check spray-arm and rack connection j) Investigate cleaning temperature k) Check tube connections/reservoir/storage conditions/expiration date of detergent	a)-g) same as rating 3 h) Replace pump i) Repair leaks and/or replace defective spare parts j) Select and set appropriate parameters for detergent in use k) Reconnect tubing/refill or replace reservoir/replace incorrectly stored or expired detergent
	5	Negative Result 5 TOSI – test soil is largely or completely unaffected	a)-k) same as rating 4 l) No cold pre-rinsing step in place or pre-rinsing too hot m) Complete breakdown of the washer and/or the chemistry	a)-k) same as rating 4 l) Investigate pre-rinsing temperature and/or availability of a pre-rinsing step m) It is strongly recommended not to use the washer/disinfectant until problems have been identified and resolved	a)-k) same as rating 4 l) Reduce pre-rinsing temperature below 40°C or install cold pre-rinsing cycle m) Investigate carefully all relevant cleaning parameters and make necessary corrections

Recommended Cleaning Parameters (please refer also to specifications of manufacturer)

Type of detergent	Concentration	Cleaning Time	Temperature
Alkaline detergent pH-Value $\geq 11,5$	5 g/litre	5 min	> 60°C
Neutral detergent with Enzymes	10 g/litre	10 min	45°C

Important note

In case of unsatisfactory test results these results should be confirmed by rerunning the test program with a smaller load. In case of confirmation of the initial test results it is recommended to investigate potential reasons for the failure. In case the cause of a failure cannot be resolved by the CSSD staff the technical service of the machine or detergent manufacturer should be contacted.
It is not recommended to change any installed parameters if such modification is restricted to the technical service of the supplier! Violation may result in a loss of warranty!