

## RECOMMENDED CLOSING TORQUE FOR DRUM MAKERS

1. Steel Drums *					
Plug type	Washer/ Gasket type	G 3/4 Closure		G 2 Closure	
		Ftlbs	Nm	Ftlbs	Nm
Tri-Sure® Steel Plugs	Rubber	8 - 15	10 - 20	8 - 15	10 - 20
	P.E.	11 - 18	15 - 25	11 - 18	15 - 25
Tri-Sure® Plastic Plugs	Rubber	8 - 11	10 - 15	8 - 15	10 - 20
	P.E.	8 - 11	10 - 15	8 - 15	10 - 20
G3/4 in G2 Combination plug		--	--	3 - 4	4 - 6

2. Composite Drums *& **					
Plug type	Washer/ Gasket type	BCS 24x4 Buttress		BCS 56x4 Buttress	
		Ftlbs	Nm	Ftlbs	Nm
PLASTIPLUG™ Plastic Plugs	Rubber	Min. 8	Min.10	Min.9	Min. 12
	P.E.	Min. 8	Min.10	Min.9	Min. 12
G3/4 in 56x4 Combination plug		--	--	3 - 4	4 - 6

3. Free standing Plastic Drums *& ** Europe					
Plug type	Washer/ Gasket type	BCS 24x4 Buttress		BCS 56x4 Buttress	
		Ftlbs	Nm	Ftlbs	Nm
PLASTIPLUG™ Plastic Plugs	Rubber	Min. 8	Min.10	Min.9	Min. 12
	P.E.	Min. 8	Min.10	Min.9	Min. 12
G3/4 in 56x4 Combination plug		--	--	3 - 4	4 - 6

4. Free standing Plastic Drums *& ** US					
Plug type	Washer/ Gasket type	BCS G2x11,5 NPS		BCS G3/4x14 NPS	
		Ftlbs	Nm	Ftlbs	Nm
PLASTIPLUG™ Plastic Plugs	Rubber	Min. 20	Min.27	Min. 9	Min. 12
	P.E.	--	--	--	--
G3/4 in G2x11.5 Combination plug		3 - 4	4 - 6	--	--

5. Free standing Plastic Drums *& ** US/EU					
Plug type	Washer/ Gasket type	BCS G2x5 Buttress		BCS 70x6 Buttress	
		Ftlbs	Nm	Ftlbs	Nm
PLASTIPLUG™ Plastic Plugs	Rubber	Min. 20	Min.27	Min.22	Min. 30
	P.E.	--	--	Min. 30	Min. 40
G3/4 in G2x5 Combination plug		3 - 4	4 - 6	--	--

\*NOTE: Please contact your Tri-Sure® Closure Sales and Service center when the above recommended closing torques does not give satisfactory results.

\*\*NOTE: The upper limit for closing torques is determined by the configuration of the container neck. In any case both plug and Tab-Seal® cap should seat in their design position after tightening. For neck configurations reference is made to our recommended neck drawings.

- **Because of our high standards, any "mixing" of the Tri-Sure® Closure System with a "look-alike" will negate your warranty.**
- **To ensure maximum security and tightness the use of Tri-Sure® Tab-Seal® caps is recommended.**

## 6. General

- The above **recommended** closing torques are only valid for the **Tri-Sure®** Closure System and **PLASTIPLUG™** plastic plugs.
- The conversion Nm to Ftlbs has been rounded off; 1 Nm = 0.74 Ftlbs.
- After tightening of plugs, torques will reduce over time. Particularly plastic components are subject to stress relaxation resulting in a reduction of torque. In general no re-tightening of plugs will be required when the recommended torques have been applied.
- For Quality assurance purposes it is recommended to regularly check the process parameters that have an influence on the applied torque (e.g. air-pressure, wrench setting).
- It should be noted that torques measured clockwise are different when measured anti-clockwise.
- Rubber washers include Nitrile, EPDM, Viton and Butyl; P.E. stands for Polyethylene.
- Any "mixing" of the **Tri-Sure®** Closure System with a "look-alike" will void the above recommendations and our warranty.
- The performance of our closures is limited to closing by the container manufacturer and opening/closing by the drum filler (provided they use recommended closing torques. It is the decision of the end-user if the closure is suitable for multiple closing purposes.
- Reference is made to our liability statement on page 2 of this document.
- Closing a drum that is hot to the touch requires special attention as to r.p.m of the closing-tool and the temperature of the drum/product. Temperatures around and above 40 °C (100 °F) will have an influence on the application and performance of especially PE gaskets.
- Reference is made to our document PERFORMANCE CHARACTERISTICS OF WASHERS/GASKETS.
- The above recommendations are based on laboratory testing and market feedback.
- All information on our behalf in relation to our products, whether in nature of date, recommendations or otherwise, is supported by research and believed reliable, but we assume no liability whatsoever in respect of application, processing or use made of the aforementioned information or products or any consequence thereof. The user undertakes all liability in respect of the application. Processing or use of the aforementioned information or products, whose quality and other properties he shall verify, or any consequence thereof. No liability whatsoever shall attach to us for any infringement of the rights owned or controlled by a third party on intellectual, industrial or other property by reason of the application, processing or use of the aforementioned information or products by the user.