



## DRAFT TANZANIA STANDARD

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**DTZS 1691:2018 Automatic Transmission Fluids (ATF) based on road vehicles —Specification**

*Draft Standard for Public Comment only*

## 0 Foreword

This draft Tanzania Standard was prepared by the Lubricants and Oil Technical Committee under the supervision of the Chemicals Divisional Standards Committee. The Standard is prepared to specify the types and properties of Automatic Transmission Fluids (ATF) based on International vehicle manufacturers who recommend the typical ATF required on a particular vehicle application, model of vehicle and make. This Tanzania specification is based on the International recognized Automatic Transmission Manufacturers.

This draft Tanzania Standard is the four edition of Automatic Transmission Fluids (ATF) based on road vehicles —Specification

This draft Tanzania Standard has been prepared with assistance drawn from the following documents:

JSAE –JASO M 315 - Road Vehicles- Automatic Transmission Fluid - Specification, published by Japan Bureau of Standards.

KS 2490: Automatic Transmission Fluid (ATF) -Specification, published by Kenya Bureau of Standards.

For the purpose of deciding whether a particular requirement of this draft Tanzania Standard is complied with, the final value observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with TZS 4 (see clause 2).

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## 1 Scope

This draft Tanzania standard specifies requirements, sampling and test method for Automatic Transmission Fluids (ATF) based on road vehicles. It also specifies the classification as recommended by manufacturers and meeting the modern vehicles use. ATF shall be applied to Automotive-on-Road vehicles.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ASTM D 92, *Standard test method for flash and fire points by Cleveland open cup*

ASTM D 97, *Standard test method for pour point of petroleum products*

ASTM D 130, *Standard test method for corrosiveness to copper from petroleum products by copper strip test*

ASTM D 445, *Standard test method for kinematic viscosity of transparent and opaque liquids*

ASTM D 664, *Standard test method for acid number of petroleum products by Potentiometric titration*

ASTM D 892, *Standard test method for foaming characteristics of lubricating oils*

ASTM D 1500, *Standard test method for ASTM Color of petroleum products (ASTM color scale)*

ASTM D 2270, *Standard practice for calculating viscosity index from kinematic viscosity at 40 °C and 100 °C*

ASTM D 2983, *Standard test Method for low-temperature viscosity of lubricants measured by brookfield viscometer*

ASTM D 4052, *Standard test method for density and relative density of liquids by digital density meter*

ASTM D 4927, *Standard test method for elemental analysis of lubricant and additive components-barium, calcium, phosphorous, sulfur and zinc by wavelength-dispersive x-ray fluorescence spectroscopy*



### 3 Terms and definitions

For the purpose of this draft Tanzania Standard the following term and definition shall apply:

**Automatic Transmission Fluids (ATF):** special kind of oil used in automotive with self-shifting or automatic transmissions/power steering.

### 4 Requirements

#### 4.1 Color

The ATF shall be colored or colorless

#### 4.2 Performance level

The performance level as per manufacturers recommendation shall meets minimum Dexron III, Dexron VI, Mercon or equivalent.

**4.3** The ATF based on Road vehicles shall meet requirements as specified in Table 1.

**Table 1 — Properties of ATF**

S/No.	Property	Requirement		Test method and equivalent
		Dexron III, Mercon or equivalent.	Dexron VI, Mercon or equivalent	
i	Color	report	report	ASTMD 1500
ii	Density at 15 °C, min., kg/m <sup>3</sup>	845	840	ASTM D 4052/IP 365
iii	Kinematic viscosity mm <sup>2</sup> /s at 40 °C min	30	26	ASTMD 445
iii	Kinematic viscosity mm <sup>2</sup> /s at 100 °C min	6	5.6	ASTMD 445
iv	Viscosity index. min.	150	150	ASTMD 2270
v	Brookfield Viscosity mPas	-10 °C - REPORT -20°C -1,500 (Max) -30°C - 5,000 (Max) -40°C - 20,000 (Max)	-10 °C - REPORT -20°C -1,500 (Max) -30°C - 5,000 (Max) -40°C-20,000 (Max)	ASTMD 2983
vi	Pour point °C (max)	-40	-40	ASTM D 97
vii	Rust and Corrosion	No rust and corrosion on any Surface	No rust and corrosion on any Surface	
viii	*Elemental analysis of P and S	Report	Report	ASTMD 4927
ix	Copper corrosion, max.	1b	1b	ASTMD 130
x	Flash point °C, min.	160	180	ASTMD 92
xi a)	Foam tendency/foam stability	-No foam at 95 °C -5mm Max at 130 °C	-No foam at 95 °C -5mm Max at 130 °C	ASTMD 892

		-15s break time at 135 °C	-15s break time at 135 °C	
b)	Sequence I mL Sequence II mL Sequence III mL	10/0 20/0 10/0	10/0 20/0 10/0	
xii	Oxidation Test Hours	300	300	ASTMD 2893
xiii	TAN increase	7.00	7.00	ASTMD 664

\*NOTE — Oil companies shall satisfy the requirements specified in the product identification data forwarded previously to authority for the reference samples on the additives included in the formulation

## 5 Marking and labeling

For compliance to this draft Tanzania Standard, marking and labeling shall indicate the types of ATF based on road vehicles.

### 5.1 Packing

ATF based on Road vehicles shall be packed in suitable containers as agreed between supplier and purchaser, including drums, metal tins, and plastic jerry cans. They shall be properly sealed to avoid leakage.

### 5.2 Labeling

The following information shall appear on the label of container(s):

- i) manufacturer's address,
- ii) name of the products, trademark/name if any,
- iii) batch,
- iv) net content,
- v) type of base oil should be clearly stated whether is Virgin or recycled
- vi) performance level e.g. DEXRON III, DEXRON VI and above and/or equivalent.

## 6 Compliance

ATF products based on road vehicles shall be deemed to meet this Tanzania Standard if it passes the requirements of this draft Tanzania Standard as in Tables 1 and the labels as specified in clause 5.2.

## Annex A (Informative)

### Classification of ATF

The classification of ATF is based on the use, application and make of vehicles. It includes the following classifications:

**A.1 Type F;** Introduced by Ford in 1967 for their automatics, also used by Toyota. It is made from base oils with viscosity index improvers, antioxidants, anti-wear agents, defoamants and special additives to provide the controlled frictional characteristics of a Type F fluid in automatic transmission applications. **Not** recommended for automatic transmissions in Ford, General Motors, Chrysler, American Motors, or any other cars requiring a Dexron-II, Dexron-IIE, Dexron-III or Mercon-approved fluid, or for those Ford products requiring an M2C 138CJ (Type CJ) fluid or an M2C 166H (Type H) fluid

**A.2 AType CJ,** Special fluid for Ford C6 transmissions. Similar to Dexron II, should not be used in automatics that require Type F. Can be replaced with Mercon or Mercon V.

**A.3 Type H** - a limited Ford spec that differs from both Dexron and Type F. Can be replaced with Mercon or Mercon V.

**A.4 Mercon;** Ford fluid introduced in 1987, very similar to Dexron II. Okay for all earlier Fords except those that require Type F. As of July 1, 2007, the production and licensing of Mercon ATF by Ford ends. Ford says applications that require Mercon ATF can now be serviced with Mercon V. See Ford TSB 06144 for more information.

**A.5 Mercon V;** Replaces Mercon, introduced in 1997 for Ranger, Explorer V6 and Aerostar, and 1998 and up Windstar, Taurus/Sable and Continental. This is the current ATF for most late model Ford products.

**A.6 Mercon SP;** Latest friction-modified ATF for Ford Torque Shift Transmissions only. Do NOT use in transmissions that require Mercon or Mercon V.

**A.7 Dexron;** General Motors (GM) original ATF for automatics.

**A.8 Dexron II;** Improved GM formula with better viscosity control and additional oxidation inhibitors. Can be used in place of Dexron.

**A.9 Dexron-IID** Corrosion inhibitors were added to Dexron-II to address the solder corrosion issue. The resultant fluid, released in 1975, was called Dexron-IID.

**A.10 Dexron IIE;** GM fluid for electronic transmissions. Dexron-IIE Dexron-IIE was introduced in an effort to address the hygroscopicity problems with the previous IID fluid

**A.11 Dexron III;** Replaces Dexron IIE and adds improved oxidation and corrosion control in GM electronic automatics. Dexron-III. In 1993, GM released new Dexron-III fluid. It is generally backward-compatible with transmissions originally filled with earlier Dexron fluids or with Type-A/Suffix-A fluid.

**A.12 Dexron III (H);** Improved version of Dexron III released in 2003.

**A.13 Dexron III/Saturn;** A special fluid spec for Saturns.

**A.14 Dexron-VI;** The fluid specification for Dexron-VI was introduced in 2005, and was first used as the General Motor (GM) factory-fill automatic transmission fluid for model year 2006. Introduced in 2006 for GM Hydra-Matic 6L80 6-speed rear-wheel-drive transmissions. Dexron VI now replaces Dexron III and II, and can be used in GM or import transmissions that formerly specified Dexron III or II.

**A.15 Chrysler 7176;** For Chrysler FWD transaxles.

**A.16 Chrysler 7176D (ATF+2);** Adds improved cold temperature flow and oxidation resistance. Introduced 1997.

**A.17 Chrysler 7176E (ATF+3);** Adds improved shear stability and uses a higher quality base oil. Required for four-speed automatics (do NOT use Dexron or Mercon as a substitute).

**A.18 Chrysler ATF+4 (ATE);** Introduced in 1998, ATF+4 is synthetic and replaces the previous ATF+3 fluid. Used primarily for 2000 and 2001 vehicles, it can also be used in earlier Chrysler transmissions (except 1999 and older minivans with 41TE/AE transmission). ATF+3 should continue to be used for 1999 and earlier minivans because of the potential for torque converter shudder during break in.

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## **Annex B**

### **Equivalent ATF**

There are several types of ATF manufacturers which may be equivalent to the Dexron types, manufactures may not be limited to Dexron type but equivalent may also be used and labelled in the containers.

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