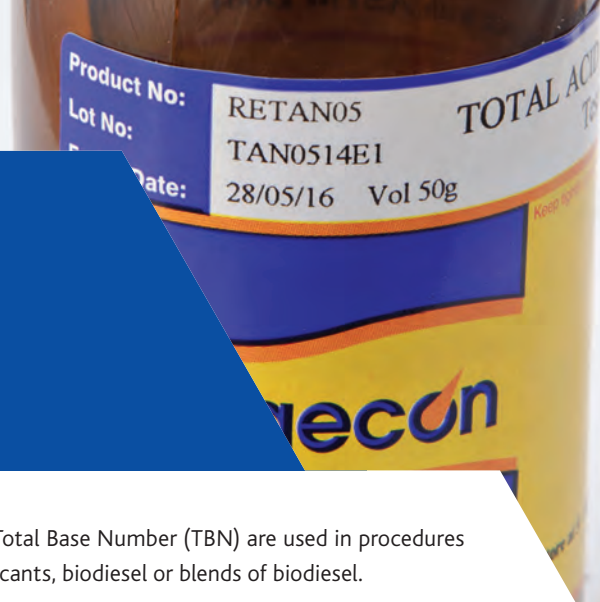


# Total Acid Number/ Total Base Number Standards & Reagents



The products listed in this section for Total Acid Number (TAN) and Total Base Number (TBN) are used in procedures to test and control the acidic or basic constituents in petroleum, lubricants, biodiesel or blends of biodiesel.

## Total Acid Number (TAN)

The procedures for the measurement of this parameter (laid down in various ASTM methods) vary depending on sample solubility in materials such as Toluene or Propan-2-ol, the dissociation constants of the acids in water, or the nature of the test sample. Therefore, the methodology used for lubricants maybe be different from the methodology used for biodiesel. In new and used oils the constituents that maybe considered to have acidic characteristics include organic acids, inorganic acids, esters, phenolic compounds, lactones, resins, salts of heavy metals, acid salts of polybasic acids, and additives such as inhibitors and detergents.

The test method is used to indicate relative changes that occur in oil during use under oxidising conditions regardless of the colour or other properties of the oil. The method is also used as a guide in the quality control of lubricating oil formulations or as a measure of lubricant degradation. It is not intended to measure an absolute acidic property that can be used to predict performance of oil under working conditions. There is no known relationship between corrosion of bearings and acid number. The methodology of performing the test involves dissolving the sample in a titration solvent and titrating potentiometrically as an acid/base titration with alcoholic potassium hydroxide.

## Total Base Number (TBN)

The constituents of oils and lubricants that may be considered to have basic characteristics include organic bases, inorganic bases, amino compounds, salts of weak acids (soaps), basic salts of polyacidic bases and salts of heavy metals. The test methodology involves dissolving the sample in an anhydrous mixture of chlorobenzene/glacial acetic acid and titrating potentiometrically with a solution of perchloric acid in glacial acetic acid. Both new and used petroleum products can contain basic constituents that are present as additives. The test is sometimes used as a measure of lubricant degradation but any condemning limits based on the test must be established on an individual basis.

The following list of products are a selection of Solvents, Titrants, Standards, Buffers and Electrolytes specifically formulated for the testing of TAN and TBN using ASTM methods D664 and D2896 respectively.

## Reagents, Titrants & Standards for ASTM D664: Acid Number of Petroleum Products by Potentiometric Titration

Product No.	Description	Pack Size
EFSLIET	Electrolyte: 1M Lithium Chloride in Ethanol	100ml
104025	Buffer pH 4.00 - 25°C	1L
107025	Buffer pH 7.00 - 25°C	1L
111025	Buffer pH 11.00 - 25°C	1L
PH20101	0.1M Hydrochloric Acid in propan-2-ol	1L
PH201005	0.1M Hydrochloric Acid in propan-2-ol	500ml
KOH01F	0.1M Potassium Hydroxide in propan-2-ol	1L
KOH01H	0.1M Potassium Hydroxide in propan-2-ol	500ml
KOH001F	0.01M Potassium Hydroxide in propan-2-ol	1L
KOH001H	0.01M Potassium Hydroxide in propan-2-ol	500ml
TANSOLVF	TAN Titration Solvent. Per litre: 500mls toluene, 495mls propan-2-ol, 5mls water	1L
TANSOLVW	TAN Titration Solvent. Per litre: 500mls toluene, 495mls propan-2-ol, 5mls water	2.5L
TANSOLVF10	TAN Titration Solvent. Per litre: 500mls toluene, 495mls propan-2-ol, 5mls water	10L
TANSOLVF20	TAN Titration Solvent. Per litre: 500mls toluene, 495mls propan-2-ol, 5mls water	20L

## Reagents, Titrants & Standards for ASTM D2896: Base Number of Petroleum Products by Potentiometric Titration

Product No.	Description	Pack Size
P2010F	0.1M Perchloric Acid in glacial acetic acid	1L
P2010H	0.1M Perchloric Acid in glacial acetic acid	500ml
EFSNACLO4	Electrolyte: saturated sodium perchlorate in glacial acetic acid	100ml
TBNSOLV1F	TBN Titration solvent - 2:1 chlorobenzene and glacial acetic acid	1L
TBNSOLV1W	TBN Titration solvent - 2:1 chlorobenzene and glacial acetic acid	2.5L
TBNSOLV1F10	TBN Titration solvent - 2:1 chlorobenzene and glacial acetic acid	10L
TBNSOLV1F20	TBN Titration solvent - 2:1 chlorobenzene and glacial acetic acid	20L
NAAC010F	0.1N Sodium Acetate in glacial acetic acid	1L
104025	Buffer pH 4.00 - 25°C	1L
107025	Buffer pH 7.00 - 25°C	1L
111025	Buffer pH 11.00 - 25°C	1L
TBNSOLV2F	TBN Titration solvent - 0.4M tetraethylammonium bromide in ethylene glycol	1L
TBNSOLV2W	TBN Titration solvent - 0.4M tetraethylammonium bromide in ethylene glycol	2.5L

## TAN Standards: All in a Synthetic Base Oil Matrix

Product No.	Description	Pack Size
RETAN0.5	TAN standard: 0.5 mg/g KOH	50g
RETAN01	TAN standard: 0.1mg/g KOH	50g
RETAN01R	TAN standard: 0.1mg/g KOH	100g
RETAN01S	TAN standard: 0.1mg/g KOH	3 x 100g
RETAN05	TAN standard: 0.5 mg/g KOH	50g
RETAN05R	TAN standard: 0.5 mg/g KOH	100g
RETAN05S	TAN standard: 0.5 mg/g KOH	3 x 100g
RETAN10	TAN standard: 1.0 mg/g KOH	50g
RETAN10R	TAN standard: 1.0 mg/g KOH	100g
RETAN10S	TAN standard: 1.0 mg/g KOH	3 x 100g
RETAN15	TAN standard, 1.5mg/g KOH	50g
RETAN15R	TAN standard: 1.5 mg/g KOH	100g
RETAN15S	TAN standard: 1.5 mg/g KOH	3 x 100g
RETAN20	TAN standard: 2.0mg/g KOH	50g
RETAN20R	TAN standard: 2.0 mg/g KOH	100g
RETAN20S	TAN standard: 2.0 mg/g KOH	3 x 100g
RETAN25	TAN standard: 2.5mg/g KOH	50g
RETAN25R	TAN standard: 2.5 mg/g KOH	100g
RETAN25S	TAN standard: 2.5 mg/g KOH	3 x 100g
RETAN30	TAN standard: 3.0mg/g KOH	50g
RETAN30R	TAN standard: 3.0 mg/g KOH	100g
RETAN30S	TAN standard: 3.0 mg/g KOH	3 x 100g
RETAN45	TAN standard: 4.5 mg/g KOH	50g
RETAN45R	TAN standard: 4.5 mg/g KOH	100g
RETAN45S	TAN standard: 4.5 mg/g KOH	3 x 100g

## TBN Standards: All in a Synthetic Base Oil Matrix

Product No.	Description	Pack Size
RETBN1	TBN Standard: 1.0 mg/g KOH	50g
RETBN1R	TBN Standard: 1.0 mg/g KOH	100g
RETBN1S	TBN Standard: 1.0 mg/g KOH	3 x 100g
RETBN3	TBN Standard: 3.0 mg/g KOH	50g
RETBN3R	TBN Standard: 3.0 mg/g KOH	100g
RETBN3S	TBN Standard: 3.0 mg/g KOH	3 x 100g
RETBN6	TBN Standard: 6.0 mg/g KOH	50g
RETBN6R	TBN Standard: 6.0 mg/g KOH	100g
RETBN6S	TBN Standard: 6.0 mg/g KOH	3 x 100g
RETBN10	TBN Standard: 10 mg/g KOH	50g
RETBN10R	TBN Standard: 10 mg/g KOH	100g
RETBN10S	TBN Standard: 10 mg/g KOH	3 x 100g
RETBN15	TBN Standard: 15 mg/g KOH	50g
RETBN15R	TBN Standard: 15 mg/g KOH	100g
RETBN15S	TBN Standard: 15 mg/g KOH	3 x 100g
RETBN30	TBN Standard: 30 mg/g KOH	50g
RETBN30R	TBN Standard: 30 mg/g KOH	100g
RETBN30S	TBN Standard: 30 mg/g KOH	3 x 100g
RETBN40	TBN Standard: 40 mg/g KOH	50g
RETBN40R	TBN Standard: 40 mg/g KOH	100g
RETBN40S	TBN Standard: 40 mg/g KOH	3 x 100g
RETBN70	TBN Standard: 70 mg/g KOH	50g
RETBN70R	TBN Standard: 70 mg/g KOH	100g
RETBN70S	TBN Standard: 70 mg/g KOH	3 x 100g