

WADA Technical Letter – TL24 Diuretics

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Written by:	WADA WG on Contaminants	Approved by:	WADA Executive Committee
Reviewed by:	WADA Laboratory Expert Advisory Group		
Date:	11 March 2023	Effective date:	01 April 2024

Minimum Reporting Level for Certain Diuretics that are Known Contaminants of Pharmaceutical Products

1.0 Introduction

WADA wishes to draw the attention of the Laboratories and *Anti-Doping Organizations (ADOs)* in charge of *Results Management* (the Results Management Authority, or RMA) to the following observations and instructions on the reporting of certain diuretics (namely, acetazolamide, bumetanide, furosemide, hydrochlorothiazide, torasemide, and triamterene), which are known to be found as contaminants of some legitimate pharmaceutical products.

Diuretics may be abused to mask the presence in urine of other *Prohibited Substances*, or to induce weight loss in sports/disciplines where *Athletes* need to meet weight criteria. However, trace quantities of the six (6) diuretics named above have been found as contaminants in oral pharmaceutical products, including both products available by prescription and products available over the counter. While these products are still compliant with purity levels required by good manufacturing practices, the trace quantities of diuretics found in such products are sufficient to cause an *Adverse Analytical Finding (AAF)*.

At estimated urinary concentrations of 20 ng/mL or less, these six (6) diuretics would not be effective to mask the presence of any other *Prohibited Substances* that may be present in the *Sample*. Therefore, the *Minimum Reporting Level (MRL)* for the six (6) diuretics identified above, set at 20 ng/mL, will minimize the risk of sanctioning *Athletes* who test positive due to the use of contaminated medications, without undermining the fight for clean sport.

2.0 Reporting Requirements

- a) The presence in urine of one or more of these six (6) diuretics, namely acetazolamide, bumetanide, furosemide, hydrochlorothiazide, torasemide, and triamterene, in each case at an estimated concentration greater than (>) the *MRL* of 20 ng/mL, shall be reported as an *AAF*.
- b) The presence in urine of one or more of these six (6) diuretics, namely acetazolamide, bumetanide, furosemide, hydrochlorothiazide, torasemide and triamterene, at an estimated concentration at or below (\leq) the *MRL* of 20 ng/mL, shall be reported as a Negative Finding.

This also applies to chlorothiazide (which may form from hydrochlorothiazide) when detected in a *Sample* at levels below 20 ng/mL in the co-presence of hydrochlorothiazide at less than 20 ng/mL.

- c) As the sole exception to this new *MRL* for acetazolamide, bumetanide, furosemide, hydrochlorothiazide, torasemide, and triamterene, where a *Sample* is collected from an *Athlete* participating in a sport or discipline that uses weight classes (see Annex 1), Laboratories shall report the presence of one or more of these six (6) diuretics at an estimated concentration equal to or below (\leq) the *MRL* of 20 ng/mL as an

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Atypical Finding (ATF), triggering a mandatory investigation by the RMA to determine whether an anti-doping rule violation (ADRV) should be asserted. ¹

[Comment: The rationale for this exception is that diuretics may be abused to induce weight loss in sports/disciplines where Athletes need to meet weight criteria. This risk exists both In-Competition and Out-Of-Competition. Therefore, when a Laboratory reports the presence of one or more of the six (6) diuretics identified above at an estimated concentration of 20 ng/mL or less in the Sample of an Athlete competing in such a sport or discipline, the RMA shall conduct an investigation to determine whether it is appropriate in all the circumstances to bring proceedings asserting commission of an ADRV.]

2.1 Application of *Minimum Reporting Levels (MRL)*

- a) For these six (6) diuretics, the *MRL* is applied to the concentration of the unmodified, free form parent compound only without considering contributions from any *Metabolite* or degradation product.

*[Comment: The Laboratory may monitor the presence of phase-I and/or phase-II Metabolites and/or degradation products of these six (6) diuretics, where applicable, to strengthen the interpretation of the test results; however, the concentrations of the phase-I or phase-II Metabolites or degradation products shall not be considered for the application of the *MRL*.]*

- b) To estimate the concentration of the free form parent compound in the “A” *Sample*, the Confirmation Procedure shall follow the requirements for Non-Threshold Substances with an *MRL* established in the effective TD MRPL ^[1].

3.0 References

[1] WADA Technical Document TD MRPL: Minimum Required Performance Levels and Applicable Minimum Reporting Levels for Non-Threshold Substances Analyzed by Chromatographic-Mass Spectrometric Analytical Methods.

[Current versions of WADA Technical Documents may be found at <https://www.wada-ama.org/en/what-we-do/science-medical/laboratories>]

¹ A Stakeholder Notice detailing the mandatory investigative process has been published on 01 June 2021 (<https://www.wada-ama.org/en/resources/stakeholder-notice-regarding-potential-diuretic-contamination-cases>).

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Annex 1 Sport/Disciplines with Relevant Weight Classes

a) Sports and Disciplines of Olympic and International Olympic Committee (IOC) Recognized International Federations, and Members of the Alliance of Independent Recognized Members of Sport.

SPORT	DISCIPLINE
Arm Wrestling	Arm Wrestling
Bodybuilding	Bodybuilding
Boxing	Boxing
Ju-Jitsu	All
Judo	Judo
Karate	Karate
Kickboxing	All
Mixed Martial Arts (MMA)	All
Muaythai	Muaythai
Powerlifting	All
Sambo	Sambo
Savate	All
Sumo	Sumo
Taekwondo	Sparring
Tug of War	Tug of War
Weightlifting	Weightlifting
Wrestling	All
Wushu	Sanda

b) Sports and Disciplines of *Athletes* with an Impairment

i. International Paralympic Committee (IPC) Sports

SPORT	DISCIPLINE
Para-Powerlifting	Para-Powerlifting

ii. Non-IPC Sports

SPORT	DISCIPLINE
Arm Wrestling	Para-Arm Wrestling
Judo	Para-Judo
Taekwondo	Para-Taekwondo-Kyorugi