

Public Assessment Report

Scientific discussion

**Ezetimibe/Atorvastatine Sandoz 10 mg/10 mg,
10 mg/20 mg, 10 mg/40 mg and 10 mg/80 mg,
film-coated tablets
(ezetimibe & atorvastatin calcium trihydrate)**

NL/H/5668/001-004/DC

Date: 11 March 2026

This module reflects the scientific discussion for the approval of Ezetimibe/Atorvastatine Sandoz 10 mg/10 mg, 10 mg/20 mg, 10 mg/40 mg and 10 mg/80 mg, film-coated tablets. The procedure was finalised on 13 March 2024. For information on changes after this date please refer to the 'steps taken after finalisation' at the end of this PAR.

List of abbreviations

ASMF	Active Substance Master File
CEP	Certificate of Suitability to the monographs of the European Pharmacopoeia
CHMP	Committee for Medicinal Products for Human Use
CMD(h)	Coordination group for Mutual recognition and Decentralised procedure for human medicinal products
CMS	Concerned Member State
EDMF	European Drug Master File
EDQM	European Directorate for the Quality of Medicines
EEA	European Economic Area
EMA	European Medicines Agency
ERA	Environmental Risk Assessment
ICH	International Conference of Harmonisation
MAH	Marketing Authorisation Holder
Ph.Eur.	European Pharmacopoeia
PL	Package Leaflet
RH	Relative Humidity
RMP	Risk Management Plan
RMS	Reference Member State
SmPC	Summary of Product Characteristics
TSE	Transmissible Spongiform Encephalopathy

I. INTRODUCTION

Based on the review of the quality, safety and efficacy data, the Member States have granted a marketing authorisation for Ezetimibe/Atorvastatine Sandoz 10 mg/10 mg, 10 mg/20 mg, 10 mg/40 mg and 10 mg/80 mg, film-coated tablets from Sandoz B.V.

The product is indicated for:

Hypercholesterolaemia

Product as an adjunct to diet is indicated as substitution therapy for treatment of adults with primary (heterozygous and homozygous familial and non-familial) hypercholesterolaemia or mixed hyperlipidaemia already controlled with atorvastatin and ezetimibe given concurrently at the same dose level, but as separate products.

A comprehensive description of the up-to-date indications and posology is given in the SmPC.

The marketing authorisation has been granted pursuant to Article 10(1) of Directive 2001/83/EC, which concerns a generic application.

In this decentralised procedure, essential similarity is proven between the new product and a European Reference Product (ERP), Atozet 10 mg/10 mg, 10 mg/20 mg, 10 mg/40 mg and 10 mg/80 mg film-coated tablets, which has been registered in Germany via decentralised procedure (DE/H/3895/001-004/DC) since 12 September 2014.

The concerned member states (CMS) involved in this procedure were Belgium, Croatia, Germany, Greece, France, Hungary, Italy, Lithuania, Poland, Portugal, Romania, Slovakia and Spain.

II. QUALITY ASPECTS

II.1 Introduction

Ezetimibe/Atorvastatine Sandoz 10 mg/10 mg, 10 mg/20 mg, 10 mg/40 mg and 10 mg/80 mg are film-coated tablets. The four strengths of the film-coated tablets can be distinguished by shape, size and colour and are as follows:

Ezetimibe/Atorvastatine Sandoz 10 mg/10 mg

White, round, biconvex film-coated tablets, with a diameter of approximately 8.1 mm. Each tablet contains 10 mg of ezetimibe and 10 mg of atorvastatin (as calcium trihydrate) as active substances.

Ezetimibe/Atorvastatine Sandoz 10 mg/20 mg

White, ovaloid, biconvex film-coated tablets, with dimensions approximately 11.6 x 7.1 mm. Each tablet contains 10 mg of ezetimibe and 20 mg of atorvastatin (as calcium trihydrate) as active substances.

Ezetimibe/Atorvastatine Sandoz 10 mg/40 mg

White, capsule shaped, biconvex film-coated tablets, with dimensions approximately 16.1 x 6.1 mm. Each tablet contains 10 mg of ezetimibe and 40 mg of atorvastatin (as calcium trihydrate) as active substances.

Ezetimibe/Atorvastatine Sandoz 10 mg/80 mg

Yellow, oblong, biconvex film-coated tablets, with dimensions approximately 19.1 x 7.6 mm. Each tablet contains 10 mg of ezetimibe and 80 mg of atorvastatin (as calcium trihydrate) as active substances.

The excipients are:

Tablet core - cellulose microcrystalline 101 (E460), mannitol (E421), calcium carbonate (E270), croscarmellose sodium (E468), hydroxypropylcellulose (E463), polysorbate 80 (E433), iron oxide yellow (E172), magnesium stearate (E470b), povidone K29/32 (E1201) and sodium laurilsulfate (E487).

Film-coating 10 mg/10 mg, 10 mg/20 mg and 10 mg/40 mg film-coated tablets - lactose monohydrate, hypromellose 2910 (E464), titanium dioxide (E171) and macrogol 4000 (E1521).

Film-coating 10 mg/80 mg film-coated tablets - hypromellose 2910, titanium dioxide (E171), talc (E553b), macrogol 4000 and iron oxide yellow (E172).

The drug product corresponds to a film-coated tablet intended for immediate release containing two active substances, atorvastatin calcium trihydrate and ezetimibe in separate layers in the same dosage form. The layers are manufactured separately. The ezetimibe layer remains the same at the different strengths, however the atorvastatin layer varies at the different strengths and is weight proportional.

The film-coated tablets are packed in oriented polyamide/aluminium/polyvinyl chloride/aluminium (OPA/Al/PVC/Al) blisters or perforated unit-dose blisters.

II.2 Drug Substance

The active substances are ezetimibe and atorvastatin calcium trihydrate.

Ezetimibe

Ezetimibe is a white to off-white crystalline powder, which is freely soluble in methanol and acetone, soluble in ethanol, but practically insoluble in water. The drug substance exhibits polymorphism. Ezetimibe contains three asymmetric carbon atoms and therefore exhibits optical isomerism. For this product, a specific polymorphic form is consistently produced and adequately controlled. Ezetimibe is not described in the Ph.Eur. A draft version of ezetimibe exists and has been published in Pharmeuropa no. 32.3 (July 2020).

The Active Substance Master File (ASMF) procedure is used for the active substance ezetimibe with two different ASMF-holders. The main objective of the ASMF procedure, commonly known as the European Drug Master File (EDMF) procedure, is to allow valuable confidential intellectual property or 'know-how' of the manufacturer of the active substance (ASM) to be protected, while at the same time allowing the applicant or marketing authorisation holder (MAH) to take full responsibility for the medicinal product, the quality and quality control of the active substance. Competent Authorities/EMA thus have access to the complete information that is necessary to evaluate the suitability of the use of the active substance in the medicinal product.

Manufacturing process

Site 1: The manufacturing process consists of a regulatory synthesis route. Adequate specifications have been adopted for starting materials, solvents and reagents. The active substance has been adequately characterised and the manufacturing process is described in sufficient detail.

Site 2: The manufacturing process consists of a synthesis compromised in three stages, with a total of six synthetic steps and one purification step. Adequate specifications have been adopted for starting materials, solvents and reagents. The active substance has been adequately characterised and the manufacturing process is described in sufficient detail.

Quality control of drug substance

The active substance specification is considered adequate to control the quality and meets the requirements of the ASMF. Batch analytical data demonstrating compliance with this specification have been provided for three batches from each ASMF-holder.

Stability of drug substance

Site 1: Stability data on the active substance have been provided for three lower scale and seven higher scale validation batches and one micronised batch, stored at long-term conditions up to 60 months and accelerated conditions up to 6 months in accordance with applicable European guidelines. Based on the data submitted, a retest period could be granted of 48 months when stored under the stated conditions.

Site 2: Stability data on the active substance have been provided for three batches in accordance with applicable European guidelines. Based on the data submitted, a retest period could be granted of 36 months when stored under the stated conditions.

Atorvastatin calcium trihydrate

The active substance atorvastatin calcium trihydrate is an established active substance described in the European Pharmacopoeia (Ph.Eur.). Atorvastatin calcium trihydrate has two chiral centres and therefore exhibits optical isomerism. The active substance is a crystalline powder and is very slightly soluble in water. For this product, polymorphic form I is consistently produced.

The CEP procedure is used for the active substance atorvastatin calcium trihydrate with two different CEP-holders. Under the official Certification Procedures of the EDQM of the Council of Europe, manufacturers or suppliers of substances for pharmaceutical use can apply for a certificate of suitability concerning the control of the chemical purity and microbiological quality of their substance according to the corresponding specific monograph, or the evaluation of reduction of Transmissible Spongiform Encephalopathy (TSE) risk, according to the general monograph, or both. This procedure is meant to ensure that the quality of substances is guaranteed and that these substances comply with the Ph.Eur.

Manufacturing process

Two CEPs have been submitted; therefore no details on the manufacturing process have been included.

Quality control of drug substance

The active substance specification is considered adequate to control the quality and meets the requirements of the monograph in the Ph.Eur. Batch analytical data demonstrating compliance with this specification have been provided for six batches from site 1 and three batches from site 2.

Stability of drug substance

Site 1: The active substance is stable for 24 months when stored under the stated conditions. Assessment thereof was part of granting the CEP (and has been granted by the EDQM).

Site 2: The active substance is stable for 36 months when stored under the stated conditions. Assessment thereof was part of granting the CEP (and has been granted by the EDQM).

II.3 Medicinal Product

Pharmaceutical development

The product is an established pharmaceutical form and its development is adequately described in accordance with the relevant European guidelines.

The choice of excipients is justified and their functions explained. The main development studies were the characterisation of the reference product, formulation development, dissolution methods development, manufacturing process development and the performance

of comparative dissolution studies in support of the bioequivalence study and biowaiver of strengths.

Manufacturing process

The manufacturing process, which includes manufacturing of atorvastatin blend (dispensing, mixing, binder solution preparation, wet granulation, drying, sizing, mixing, lubrication), manufacturing of ezetimibe blend (dispensing, mixing, binder solution preparation, wet granulation, wet milling, drying, sizing, sieving, mixing, sieving/lubrication), tablet formation (tableting, coating suspension preparation), coating and packaging, is considered to be a standard process. The manufacturing process has been described in sufficient detail. Mixing/blending times, addition times, granulation times, mixing speed for the numerous mixing and blending stages, critical and non-critical relevant process parameters as applied during the process validation have been included in a description of the process. The manufacturing process has been validated according to relevant European/ICH guidelines. Process validation data on the product have been presented for two lab-batches per strength and one pilot scale batch per strength, in accordance with the relevant European guidelines.

Control of excipients

Specifications for all excipients have been provided. Except for coating agents, the specifications for all other excipients are in line with Ph. Eur., with additional testing for some excipients. These specifications are acceptable.

Quality control of drug product

The finished product specifications are adequate to control the relevant parameters for the dosage form. The specification includes tests for appearance, average weight, disintegration time, content uniformity, identification, identification of colourants, water content, dissolution, assay, related substances and microbiological tests. Limits in the specification have been justified and are considered appropriate for adequate quality control of the product. An adequate nitrosamines risk evaluation report has been provided. No risk for presence of nitrosamines in the drug product was identified.

Satisfactory validation data for the analytical methods have been provided.

Batch analytical data from twelve batches (two commercial scale batches and one smaller scale batch per strength) from the proposed production sites have been provided, demonstrating compliance with the specification.

Stability of drug product

Stability data on the product have been provided for two commercial scale batches and one smaller scale batch per strength, stored at 25°C/60% RH (36 months), 30°C/65% RH (12 months) and 40°C/75% RH (6 months). Photostability studies were performed in accordance with ICH recommendations and showed that the product is stable when exposed to light. On basis of the data submitted, a shelf life was granted of 24 months. No specific storage conditions needed to be included in the SmPC or on the label.

Specific measures concerning the prevention of the transmission of animal spongiform encephalopathies

Scientific data and/or certificates of suitability issued by the EDQM for excipient lactose monohydrate have been provided and compliance with the Note for Guidance on Minimising the Risk of Transmitting Animal Spongiform Encephalopathy Agents via medicinal products has been satisfactorily demonstrated.

II.4 Discussion on chemical, pharmaceutical and biological aspects

Based on the submitted dossier, the member states consider that Ezetimibe/Atorvastatine Sandoz has a proven chemical-pharmaceutical quality. Sufficient controls have been laid down for the active substance and finished product.

No post-approval commitments were made.

III. NON-CLINICAL ASPECTS

III.1 Ecotoxicity/environmental risk assessment (ERA)

Since Ezetimibe/Atorvastatine Sandoz is intended for generic substitution, this will not lead to an increased exposure to the environment. An environmental risk assessment was therefore not deemed necessary.

III.2 Discussion on the non-clinical aspects

This product is a generic formulation of Atozet which is available on the European market. Reference was made to the preclinical data obtained with the innovator product. A non-clinical overview on the pharmacology, pharmacokinetics and toxicology has been provided, which was based on up-to-date and adequate scientific literature. The overview justifies why there is no need to generate additional non-clinical pharmacology, pharmacokinetics and toxicology data. Therefore, the member states agreed that no further non-clinical studies are required.

IV. CLINICAL ASPECTS

IV.1 Introduction

Ezetimibe and atorvastatin calcium trihydrate are well-known active substances with established efficacy and tolerability. A clinical overview has been provided, which is based on scientific literature. The member states agreed that no further clinical studies are required, besides the one bioequivalence study, which is discussed below. In addition, a biowaiver of strength was requested for the 10 mg/10 mg, 10 mg/20 mg and 10 mg/40 mg strengths.

IV.2 Pharmacokinetics

The MAH conducted a bioequivalence study in which the pharmacokinetic profile of the test product Ezetimibe/Atorvastatine Sabndoz 10 mg/80 mg, film-coated tablets (Sandoz B.V., the Netherlands) was compared with the pharmacokinetic profile of the reference product Atozet 10 mg/80 mg, film-coated tablets (MSD Sharp & Dohme B.V., Germany).

The choice of the reference product in the bioequivalence study has been justified by comparison of dissolution study results and composition. Dissolution studies were conducted in different pH conditions (pH 1.2, pH 4.5 and pH 6.8) for the bioequivalence strength (ezetimibe/atorvastatine 10 mg/80 mg) and the strengths opted for biowaiver (ezetimibe/atorvastatine 10 mg/40 mg, 10 mg/20 mg, and 10 mg/10 mg). The formula and preparation of the bioequivalence batch was identical to the formula proposed for marketing.

Biowaiver

For the additional strengths (Ezetimibe/Atorvastatine 10 mg/10 mg, 10 mg/20 mg and 10 mg/40 mg) a biowaiver is claimed, based on the following general requirements (according to the EMA Bioequivalence guideline):

- the pharmaceutical products are manufactured by the same manufacturing process,
- the qualitative composition of the different strengths is the same,
- the composition of the strengths are quantitatively proportional, i.e. the ratio between the amount of each excipient to the amount of active substance(s) is the same for all strengths (for immediate release products coating components, capsule shell, colour agents and flavours are not required to follow this rule),
- appropriate *in vitro* dissolution data confirms the adequacy of waiving additional *in vivo* bioequivalence testing.

The dissolution was investigated according to the EMA Bioequivalence guideline. Additional information regarding the method used for bootstrapping was provided. The software used for bootstrapping and the conditions used are acceptable in this case. The calculated f_2 similarity factor values were within criteria (>50%). An f_2 value between 50 and 100% suggests that the two dissolution profiles are similar.

Similarity in dissolution for all strengths could therefore be considered sufficiently demonstrated.

Bioequivalence study

Design

A single-dose, randomised, two-period, two-treatment, two-sequence, crossover bioequivalence study was carried out under fasted conditions in 80 healthy (66 male and 14 female) subjects, aged 19-44 years. Each subject received a single dose (10 mg/80 mg) of one of the two ezetimibe/atorvastatin calcium trihydrate formulations. The tablet was orally administered with 240 ml water after an overnight fasting of at least 10 hours. There were two dosing periods, separated by a washout period of fifteen days.

Blood samples were collected pre-dose and at 0.17, 0.25, 0.33, 0.50, 0.75, 1, 1.33, 1.67, 2, 2.33, 2.67, 3, 3.33, 3.67, 4, 4.50, 5, 6, 8, 10, 12, 16, 24, 36, 48 and 72 hours after administration of the products.

The design of the study is acceptable.

Ezetimibe and atorvastatin calcium trihydrate may be taken without reference to food intake. From the literature it is known that food does not interact with the absorption of ezetimibe and atorvastatin calcium trihydrate. Therefore, a food interaction study is not deemed necessary. The bioequivalence study under fasting conditions is in accordance with CPMP/EWP/QWP/1401/98 Note for Guidance on the investigation of bioavailability and bioequivalence.

Analytical/statistical methods

The analytical method has been adequately validated and is considered acceptable for analysis of the plasma samples. The methods used in this study for the pharmacokinetic calculations and statistical evaluation are considered acceptable.

Results

A total of 8 subjects were withdrawn from the study, all in the second period, 4 subjects were withdrawn due to adverse events, 3 subjects did not report to the facility and 1 subject was tested positive in drug abuse. 72 subjects were eligible for pharmacokinetic analysis.

The measured pharmacokinetic parameters of total ezetimibe (ezetimibe (unconjugated) + ezetimibe (conjugated)) and atorvastatin calcium trihydrate are summarised below.

Table 1. Pharmacokinetic parameters (non-transformed values; arithmetic mean $\pm$ SD, $t_{\max}$ (median, range)) of total ezetimibe (ezetimibe (unconjugated) + ezetimibe (conjugated)), 10 mg under fasted conditions.

Treatment N=72	AUC _{0-t} (ng.h/mL)	C _{max} (ng/mL)	t _{max} (h)
Test	1147 $\pm$ 554	143 $\pm$ 59	0.75 (0.50 - 2.00)
Reference	1190 $\pm$ 540	164 $\pm$ 63	0.75 (0.50 – 4.50)
*Ratio (90% CI)	0.94 (0.90 – 0.98)	0.86 (0.81 – 0.90)	-
AUC_{0-∞} Area under the plasma concentration-time curve from time zero to infinity AUC_{0-t} Area under the plasma concentration-time curve from time zero to t = 72 hours C_{max} Maximum plasma concentration t_{max} Time after administration when maximum plasma concentration occurs CI Confidence interval			

**In-transformed values*

Table 2. Pharmacokinetic parameters (non-transformed values; arithmetic mean $\pm$ SD, $t_{\max}$ (median, range)) of atorvastatin calcium trihydrate, 80 mg under fasted conditions.

Treatment N=72	AUC _{0-t} (ng.h/mL)	AUC _{0-∞} (ng.h/mL)	C _{max} (ng/mL)	t _{max} (h)
Test	319 $\pm$ 198	323 $\pm$ 198	92 $\pm$ 87	1.33 (0.50 – 4.50)
Reference	323 $\pm$ 198	328 $\pm$ 198	92 $\pm$ 79	1.00 (0.50 – 4.50)
*Ratio (90% CI)	0.99 (0.95 - 1.05)	-	1.01 (0.92 – 1.11)	-
AUC_{0-∞} Area under the plasma concentration-time curve from time zero to infinity AUC_{0-t} Area under the plasma concentration-time curve from time zero to t = 72 hours C_{max} Maximum plasma concentration t_{max} Time after administration when maximum plasma concentration occurs CI Confidence interval				

**In-transformed values*

Conclusion on bioequivalence study:

The 90% confidence intervals calculated for AUC_{0-t}, and C_{max} are within the bioequivalence acceptance range of 0.80 – 1.25. Based on the submitted bioequivalence study Ezetimibe/Atorvastatine Sandoz 10 mg/80 mg is considered bioequivalent with Atozet 10 mg/80 mg.

The results of the study with the 10 mg/80 mg formulation can be extrapolated to the other strengths of 10 mg/10 mg, 10 mg/20 mg and 10 mg/40 mg, according to conditions in Guideline on the Investigation of Bioequivalence CPMP/EWP/QWP/1401/98 Rev. 1/Corr*, section 4.1.6.

The MEB has been assured that the bioequivalence study has been conducted in accordance with acceptable standards of Good Clinical Practice (GCP, see Directive 2005/28/EC) and Good Laboratory Practice (GLP, see Directives 2004/9/EC and 2004/10/EC).

IV.3 Risk Management Plan

The MAH has submitted a risk management plan, in accordance with the requirements of Directive 2001/83/EC as amended, describing the pharmacovigilance activities and interventions designed to identify, characterise, prevent or minimise risks relating to Ezetimibe/Atorvastatine Sandoz At the time of approval, the most recent version of the RMP was version 3.0 dated 7 September 2022.

Table 3. Summary table of safety concerns as approved in RMP

Important identified risks	• Muscle injury (Rhabdomyolysis/myopathy) • Abnormal liver function
Important potential risks	None
Missing information	• Use in children less than 18 years of age • Use in patients with moderate or severe liver problems (Exposure in patients with moderate or severe hepatic insufficiency)

The member states agreed that routine pharmacovigilance activities and routine risk minimisation measures are sufficient for the risks and areas of missing information.

IV.4 Discussion on the clinical aspects

For this authorisation, reference is made to the clinical studies and experience with the innovator product Atozet. The MAH demonstrated through a bioequivalence study that the pharmacokinetic profile of the product is similar to the pharmacokinetic profile of this reference product. Risk management is adequately addressed. This generic medicinal product can be used instead of the reference product.

V. USER CONSULTATION

A user consultation with target patient groups on the package leaflet (PL) has been performed on the basis of a bridging report making reference to Atozet 10 mg/10 mg, 10 mg/20 mg, 10 mg/40 mg and 10 mg/80 mg, film-coated tablets (DE/H/3895/001-004/DC) for content and key safety messages and to Alendroninezuur/Cholecalciferol Sandoz 70 mg/5600 IU, tablets (NL/H/3578/001/DC+NL/H/3587/001/DC) for design, style of writing and layout. The bridging report submitted by the MAH has been found acceptable; bridging is justified for both content and layout of the leaflet.

VI. OVERALL CONCLUSION, BENEFIT/RISK ASSESSMENT AND RECOMMENDATION

Ezetimibe/Atorvastatine Sandoz 10 mg/10 mg, 10 mg/20 mg, 10 mg/40 mg and 10 mg/80 mg, film-coated tablets have a proven chemical-pharmaceutical quality and are generic forms of Atozet 10 mg/10 mg, 10 mg/20 mg, 10 mg/40 mg and 10 mg/80 mg, film-coated tablets. Atozet is a well-known medicinal product with an established favourable efficacy and safety profile.

Bioequivalence has been shown to be in compliance with the requirements of European guidance documents.

The Board followed the advice of the assessors.

There was no discussion in the CMD(h). Agreement between member states was reached during a written procedure. The member states, on the basis of the data submitted, considered that essential similarity has been demonstrated for Ezetimibe/Atorvastatine Sandoz with the reference product, and have therefore granted a marketing authorisation. The decentralised procedure was finalised with a positive outcome on 13 March 2024.

STEPS TAKEN AFTER THE FINALISATION OF THE INITIAL PROCEDURE - SUMMARY

Procedure number	Scope	Product Information affected	Date of end of procedure	Approval/ non approval	Summary/ Justification for refuse
NL/H/5668/001-4/WS/001	Change to importer, batch release arrangements and quality control testing of the finished product - Replacement or addition of a manufacturer responsible for importation and/or batch release - Including batch control/testing	Yes	4 October 2024	Approved	N.A.
	Replacement or addition of a manufacturing site for part or all of the manufacturing process of the finished product - Site where any manufacturing operation(s) take place, except batch-release, batch control, primary and secondary packaging, for non-sterile medicinal products.	No			
	Replacement or addition of a manufacturing site for part or all of the manufacturing process of the finished product - Primary packaging site - Secondary packaging site	No			
NL/H/5668/001-4/IA/002/G	Change in the name and/or address of the marketing authorisation holder	Yes	1 November 2024	Approved	N.A.

NL/H/5668/004/P/001	Update to outer labelling	Yes	23 January 2025	Approved	N.A.
NL/H/5668/001-4/IA/004/G	Change in the name and/or address of the marketing authorisation holder	Yes	26 May 2025	Approved	N.A.
NL/H/5668/001-4/IA/003/G	Change in the name and/or address of the marketing authorisation holder	Yes	1 July 2025	Approved	N.A.
NL/H/5668/001-4/IA/005/G	Submission of a new or updated Ph. Eur. certificate of suitability or deletion of Ph. Eur. certificate of suitability: For an active substance, For a starting material/reagent/in intermediate used in the manufacturing process of the active substance, For an excipient - European Pharmacopoeial Certificate of Suitability to the relevant Ph. Eur. Monograph - Updated certificate from an already approved manufacturer	No	4 February 2026	Approved	N.A.