

At a Glance:

Assessing Ostwald Ripening in
Zephex[®] 152a Formulation



The Team



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The Background

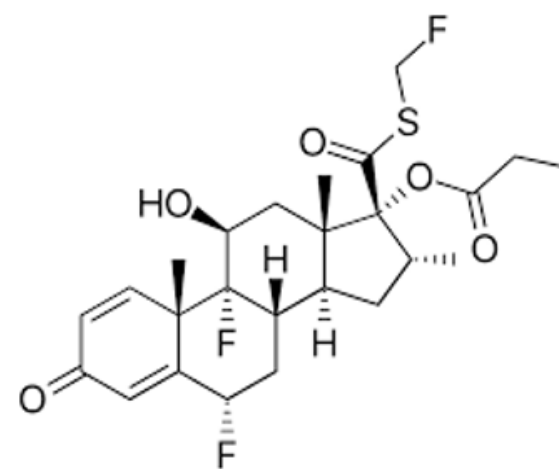
- When active pharmaceutical ingredients (APIs) are more soluble in a propellant, there is potential for Ostwald Ripening.
- This phenomenon occurs due to entropy favouring dissolution of micronized particles, thereby contributing towards growth of larger, more ordered, crystals.
- This crystal growth can alter the therapeutic performance of pMDIs.



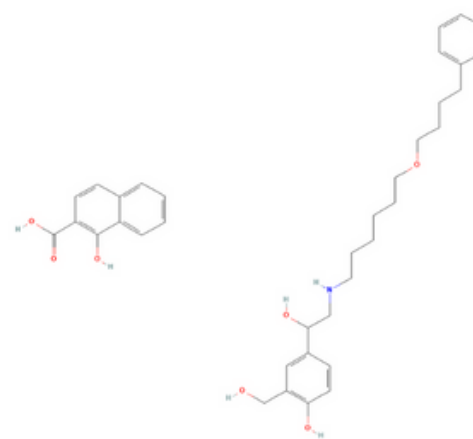
The Objective

Evaluate the potential for Ostwald Ripening in Zephex[®] 152a mono and combi suspensions with the following Active Pharmaceutical Ingredients (APIs):

Fluticasone Propionate (FP)



Salmeterol Xinafoate (SX)



The Methodology



Solubility Testing

Measured solubility of FP and SX in Zephex[®] 134a and Zephex[®] 152a.



Temperature Cycling

SX and FP mono and combi formulations were manufactured in 152a and 134a using both plain and plasma canisters.

Samples were subjected to extreme conditions (-10°C and 40°C for 48 hours, 45 times)

In-vitro analysis: pre and post cycling to obtain FPF (%) and MMAD.





Key Findings

- 1 No Ostwald Ripening observed in Zephex[®] 152a for combi or mono formulations (SX/FP or FP)
- 2 Minimal impact on delivered dose and FPF of Zephex[®] 152a formulations, ensuring that the medication reaches the lungs as intended.
- 3 Consistent aerosol size distribution (MMAD*), confirming stable particle distribution across formulations.

	1 <u>Solubility results µg/g</u>		2 <u>Reduction in FPF%</u>		3 <u>MMAD</u>	
	<u>(FP)</u>	<u>(SX)</u>	<u>(FP)</u>	<u>(SX)</u>	<u>(FP)</u>	<u>(SX)</u>
Zephex [®] 134a	9.9	15.7	6.7%	2.5%	3.5	3.3
Zephex [®] 152a	49.5	2.3	6.4%	0.4%	4.9	4.2

*Mass Median Aerodynamic Diameter



What It Means?

Zephex[®] 152a: A Reliable Low-GWP propellant for FP and SX suspension formulations

This reinforces its potential as a sustainable and therapeutic option for the future of inhalers.

