

ANNEX

Identification number of the additive	Name of the holder of authorisation	Additive	Composition, chemical formula, description, analytical method	Species or category of animal	Maximum age	Minimum content	Maximum content	Other provisions	End of period of authorisation
						mg active substance /kg of complete feed with a moisture content of 12%			
Category: Sensory additives. Functional group: Flavouring compounds									
2b139-eo	-	Lemon essential oil	Additive composition Lemon essential oil derived by cold expression from fruit peel of <i>Citrus limon</i> (L.) Osbeck Liquid form Perillaldehyde: ≤ 0.023% Furocoumarins: ≤ 2,980 mg/kg additive Methoxycoumarins: ≤ 570 mg/kg of additive ----- Characterisation of the active substance: Lemon essential oil derived by cold expression from fruit peel of <i>Citrus limon</i> (L.) Osbeck as defined by the Council of Europe ¹ d-Limonene: 60–73 % β-Pinene (pin-2(10)-ene): 9–18% γ-Terpinene: 6–12% α-Pinene (pin-2(3)-ene): 1.3–3.0% Sabinene (4(10)-thujene): 0.3–3.0% Geranial: 0.1–2.0%	Chickens for fatening	-		35	1. The additive shall be incorporated into the feed in the form of a premixture. 2. In the directions for use of the additive and premixtures, the storage conditions and stability to heat treatment shall be indicated. 3. The mixture of lemon essential oil with other authorised additives obtained from <i>Citrus limon</i> (L.) Osbeck shall be not be allowed in feedingstuffs. 4. For users of the additive and premixtures, feed business operators shall establish operational procedures and organisational measures to address potential risks by inhalation, dermal contact or eyes contact. Where those	[10 years from the date of entry into force of this Regulation. To be completed by the OP]
				Turkeys for fattening			40		
				Salmonids					
				Laying hens			52		
				Pigs for fattening			74		
				Piglets			62		
				Sows			92		
				Calves (milk replacers)			90		
				Cattle for fattening					
				Dairy cows					

¹ Natural sources of flavourings - Report No. 2 (2007)

			<p>Neral: 0.1–1.8%</p> <p>CoE No.: 139</p> <p>-----</p> <p>Analytical method²</p> <p>For the quantification of d-limonene (phytochemical marker) in the feed additives (essential lemon oil): gas chromatography coupled with flame ionisation detection (GC-FID) (based on ISO 855)</p>	<p>Horses</p> <p>Sheep/goats</p> <p>Rabbits</p>			<p>137</p> <p>30</p>	<p>risks cannot be eliminated or reduced to a minimum by such procedures and measures, the additive and premixtures shall be used with personal protective equipment, including skin, eye and breathing protection.</p>	
2b139- rf	-	Residual fraction from the distillation of lemon essential oil	<p>Additive composition</p> <p>Residual fraction from the distillation of lemon essential oil expressed which is obtained from fruit peel of <i>Citrus limon</i> (L.) Osbeck</p> <p>Liquid form</p> <p>Perillaldehyde: ≤ 0.092%</p> <p>Furocoumarins: ≤ 7,627.7 mg/kg</p> <p>Methoxycoumarins: ≤ 970 mg/kg</p> <p>-----</p> <p>Characterisation of the active substance:</p> <p>Residual fraction from the distillation of lemon essential oil expressed which is obtained from fruit peel of <i>Citrus limon</i> (L.) Osbeck</p> <p>The specifications of the active substance are:</p> <p>d-Limonene: 51–63 %</p>	<p>Chickens for fattening</p> <p>Laying hens</p> <p>Turkeys for fattening</p> <p>Rabbits</p> <p>Salmonids</p> <p>Ruminants</p> <p>Piglets</p> <p>Pigs for fattening</p>	-		<p>11</p> <p>12</p> <p>20</p> <p>20</p> <p>24</p>	<p>1. The additive shall be incorporated into the feed in the form of a premixture.</p> <p>2. In the directions for use of the additive and premixtures, the storage conditions and stability to heat treatment shall be indicated.</p> <p>3. The mixture of the residual fraction from the distillation of lemon essential oil with other authorised additives obtained from <i>Citrus limon</i> (L.) Osbeck and <i>Citrus aurantiifolia</i> (Christm.) Swingle shall be not be allowed in feedingstuffs.</p> <p>4. For users of the additive</p>	<p>[10 years from the date of entry into force of this Regulation. To be completed by the OP]</p>

² Details of the analytical methods are available at the following address of the Reference Laboratory: <https://ec.europa.eu/jrc/en/eurl/feed-additives/evaluation-reports>

			<p> γ-Terpinene: 8–17% Geranial: 6–12% Neral :5–9 % β-Pinene (pin-2(10)-ene): 0.3–5.5% β-Bisabolene: 0.3–4% <p>-----</p> <p>Analytical method³ For the quantification of d-limonene (phytochemical marker) in the feed additives (residual fraction from the distillation of essential lemon oil): gas chromatography coupled with flame ionisation detection (GC-FID) (based on ISO 855)</p> </p>	<p>Sows</p>			30	<p>premixtures, feed business operators shall establish operational procedures and organisational measures to address potential risks by inhalation, dermal contact or eyes contact. Where those risks cannot be eliminated or reduced to a minimum by such procedures and measures, the additive and premixtures shall be used with personal protective equipment, including skin, eye and breathing protection</p>	
				<p>Horses</p>			35		
2b139-di	-	Distillate of lemon essential oil	<p>Additive composition Distillate (volatile fraction) of lemon essential oil expressed, which is obtained from fruit peel of <i>Citrus limon</i> (L.) Osbeck</p> <p>Liquid form</p> <p>Furocoumarins: ≤ 0.1 mg/kg of additive Methoxycoumarins: ≤ 0.1 mg/kg of additive</p> <p>-----</p> <p>Characterisation of the active substance. Distillate (volatile fraction) from lemon essential oil expressed, which is obtained from fruit peel of <i>Citrus limon</i></p>	<p>Chickens for fattening</p>			36	<p>1. The additive shall be incorporated into the feed in the form of a premixture.</p> <p>2. In the directions for use of the additive and premixtures, the storage conditions and stability to heat treatment shall be indicated.</p> <p>3. The mixture of distillate of lemon essential oil with other authorised additives obtained from <i>Citrus limon</i> (L.) Osbeck shall be not be allowed in feedingstuffs.</p>	<p>[10 years from the date of entry into force of this Regulation. To be completed by the OP]</p>
			<p>Laying hens</p>				53		
			<p>Rabbits</p>				56		
			<p>Turkeys for fattening</p>				48		
			<p>Piglets</p>				64		
			<p>Pigs for fattening</p>				76		
			<p>Sows</p>				94		

³ Details of the analytical methods are available at the following address of the Reference Laboratory: <https://ec.europa.eu/jrc/en/eurl/feed-additives/evaluation-reports>

			<p>(L.) Osbeck as defined by the Council of Europe⁴</p> <p>The specifications of the active substance are: d-Limonene: 66–78 % β-Pinene (pin-2(10)-ene): 5–20% γ-Terpinene: 1.5–9.5 % α-Pinene (pin-2(3)-ene): 0.5–3.0% Sabinene: 0.3–3.0%</p> <p>CoE No.: 139</p> <p>-----</p> <p>Analytical method⁵ For the quantification of d-limonene (phytochemical marker) in the feed additives (distillate fraction of essential lemon): gas chromatography coupled with flame ionisation detection (GC-FID) (based on ISO 855)</p>	<p>Calves (milk replacers)</p> <p>Cattle for fattening</p> <p>Sheep/goats</p>			<p>95</p>	<p>4. For users of the additive and premixtures, feed business operators shall establish operational procedures and organisational measures to address potential risks by inhalation, dermal contact or eyes contact. Where those risks cannot be eliminated or reduced to a minimum by such procedures and measures, the additive and premixtures shall be used with personal protective equipment, including skin, eye and breathing protection.</p>	
				Horses			141		
				Dairy cows			91		
				Salmonids Ornamental fish Dogs			60		
				Cats			30		
2b141-eo		Lime essential oil	<p>Additive composition</p> <p>Lime essential oil obtained by steam distillation from unpeeled fruits of the plant species <i>Citrus aurantiifolia</i> (Christm.) Swingle</p> <p>Liquid form</p> <p>Furocoumarins: ≤ 8.3 mg/kg of additive Methoxycoumarins: ≤ 282.3 mg/kg of additive</p> <p>-----</p> <p>Characterisation of the active substance.</p>	<p>Chickens for fattening</p> <p>Laying hens</p> <p>Turkeys for fattening</p> <p>Piglets</p> <p>Pigs for fattening</p> <p>Sows</p> <p>Cattle for fattening</p>			<p>8.5</p> <p>12.5</p> <p>11</p> <p>15</p> <p>18</p> <p>22</p> <p>33.5</p>	<p>1. The additive shall be incorporated into the feed in the form of a premixture.</p> <p>2. In the directions for use of the additive and premixtures, the storage conditions and stability to heat treatment shall be indicated.</p> <p>3. The mixture of distillate of lime essential oil with other authorised additives obtained from <i>Citrus aurantiifolia</i></p>	<p>[10 years from the date of entry into force of this Regulation. To be completed by the OP]</p>

⁴ Natural sources of flavourings - Report No. 2 (2007)

⁵ Details of the analytical methods are available at the following address of the Reference Laboratory: <https://ec.europa.eu/jrc/en/eurl/feed-additives/evaluation-reports>

			<p>Lime essential oil obtained by steam distillation from unpeeled fruits of the plant species <i>Citrus aurantiifolia</i> (Christm.) Swingle as defined by the Council of Europe⁶</p> <p>The specifications of the active substance are: d-Limonene: 45–52 % γ-Terpinene: 10–14 % Terpinolene: 5.5–10.5% αTerpineo: 1 6–8% β-Caryophyllene: 0.2–0.8%</p> <p>CoE .No.:141</p> <p>-----</p> <p>Analytical method⁷ For the quantification of d-limonene (phytochemical marker) in the feed additives (lime essential oil): gas chromatography coupled with flame ionisation detection (GC-FID) (based on ISO 855)</p>	Calves (milk replacers)			35.5	<p>(Christm.) Swingle shall be not be allowed in feedingstuffs.</p> <p>4. For users of the additive and premixtures, feed business operators shall establish operational procedures and organisational measures to address potential risks by inhalation, dermal contact or eyes contact. Where those risks cannot be eliminated or reduced to a minimum by such procedures and measures, the additive and premixtures shall be used with personal protective equipment, including skin, eye and breathing protection.</p>	
				Dairy cows			21.5		
				Sheep/goats			33.5		
				Horses					
				Rabbits			13.5		
				Salmonids			30		

⁶ Natural sources of flavourings - Report No. 2 (2007)

⁷ Details of the analytical methods are available at the following address of the Reference Laboratory: <https://ec.europa.eu/jrc/en/eurl/feed-additives/evaluation-reports>