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## 饲料添加剂品种目录

(根据 2045 号公告及后续修订公告汇总, 截至 2021 年 3 月)

类别	通用名称	适用范围
氨基酸、氨基酸盐及其类似物	L-赖氨酸、液体 L-赖氨酸 (L-赖氨酸含量不低于 50%)、L-赖氨酸盐酸盐、L-赖氨酸硫酸盐及其发酵副产物 (产自谷氨酸棒杆菌、乳糖发酵短杆菌, L-赖氨酸含量不低于 51%)、DL-蛋氨酸、L-苏氨酸、L-色氨酸、L-精氨酸、L-精氨酸盐酸盐、甘氨酸、L-酪氨酸、L-丙氨酸、天 (门) 冬氨酸、L-亮氨酸、异亮氨酸、L-脯氨酸、苯丙氨酸、丝氨酸、L-半胱氨酸、L-组氨酸、谷氨酸、谷氨酰胺、缬氨酸、胱氨酸、牛磺酸	养殖动物
	半胱胺盐酸盐	畜禽
	L-半胱氨酸盐酸盐	犬 <sup>d</sup> 、猫 <sup>d</sup>
	蛋氨酸羟基类似物	猪、鸡、牛和水产养殖动物、犬 <sup>d</sup> 、猫 <sup>d</sup> 、鸭 <sup>h</sup>
	蛋氨酸羟基类似物钙盐	猪、鸡、牛和水产养殖动物、犬 <sup>d</sup> 、猫 <sup>d</sup>
	蛋氨酸羟基类似物异丙酯 <sup>h</sup>	反刍动物
	N-羟甲基蛋氨酸钙	反刍动物
维生素及类维生素	$\alpha$ -环丙氨酸	鸡
	维生素 A、维生素 A 乙酸酯、维生素 A 棕榈酸酯、 $\beta$ -胡萝卜素、盐酸硫胺 (维生素 B <sub>1</sub> )、硝酸硫胺 (维生素 B <sub>1</sub> )、核黄素 (维生素 B <sub>2</sub> )、盐酸吡哆醇 (维生素 B <sub>6</sub> )、氰钴胺 (维生素 B <sub>12</sub> )、L-抗坏血酸 (维生素 C)、L-抗坏血酸钙、L-抗坏血酸钠、L-抗坏血酸-2-磷酸酯、L-抗坏血酸-6-棕榈酸酯、维生素 D <sub>2</sub> 、维生素 D <sub>3</sub> 、天然维生素 E、dl- $\alpha$ -生育酚、dl- $\alpha$ -生育酚乙酸酯、亚硫酸氢钠甲萘醌 (维生素 K <sub>3</sub> )、二甲基嘧啶醇亚硫酸甲萘醌、亚硫酸氢烟酰胺甲萘醌、烟酸、烟酰胺、D-泛醇、D-泛酸钙、DL-泛酸钙、叶酸、D-生物素、氯化胆碱、肌醇、L-肉碱、L-肉碱盐酸盐、甜菜碱、甜菜碱盐酸盐	养殖动物
	25-羟基胆钙化醇 (25-羟基维生素 D <sub>3</sub> )	猪、家禽
	L-肉碱酒石酸盐	宠物
	维生素 K <sub>1</sub> 、酒石酸氢胆碱	犬 <sup>d</sup> 、猫 <sup>d</sup>

类别	通用名称	适用范围
矿物元素及其络（螯）合物 <sup>1</sup>	氯化钠、硫酸钠、磷酸二氢钠、磷酸氢二钠、磷酸二氢钾、磷酸氢二钾、轻质碳酸钙、氯化钙、磷酸氢钙、磷酸二氢钙、磷酸三钙、乳酸钙、葡萄糖酸钙、硫酸镁、氧化镁、氯化镁、柠檬酸亚铁、富马酸亚铁、乳酸亚铁、硫酸亚铁、氯化亚铁、氯化铁、碳酸亚铁、氯化铜、硫酸铜、碱式氯化铜、氧化锌、氯化锌、碳酸锌、硫酸锌、乙酸锌、碱式氯化锌、氯化锰、氧化锰、硫酸锰、碳酸锰、磷酸氢锰、碘化钾、碘化钠、碘酸钾、碘酸钙、氯化钴、乙酸钴、硫酸钴、亚硒酸钠、钼酸钠、蛋氨酸铜络（螯）合物、蛋氨酸铁络（螯）合物、蛋氨酸锰络（螯）合物、蛋氨酸锌络（螯）合物、赖氨酸铜络（螯）合物、赖氨酸锌络（螯）合物、甘氨酸铜络（螯）合物、甘氨酸铁络（螯）合物、酵母铜、酵母铁、酵母锰、酵母硒、氨基酸铜络合物（氨基酸来源于水解植物蛋白）、氨基酸铁络合物（氨基酸来源于水解植物蛋白）、氨基酸锰络合物（氨基酸来源于水解植物蛋白）、氨基酸锌络合物（氨基酸来源于水解植物蛋白或）	养殖动物
	赖氨酸和谷氨酸锌络合物 <sup>g</sup>	断奶仔猪、肉仔鸡和蛋鸡
	蛋白铜、蛋白铁、蛋白锌、蛋白锰	养殖动物（反刍动物除外）
	羟基蛋氨酸类似物络（螯）合锌、羟基蛋氨酸类似物络（螯）合锰、羟基蛋氨酸类似物络（螯）合铜	奶牛、肉牛、家禽和猪
	烟酸铬、酵母铬、蛋氨酸铬、吡啶甲酸铬	猪、犬 <sup>d</sup> 、猫 <sup>d</sup>
	丙酸铬 <sup>b</sup>	猪、奶牛、犬 <sup>d</sup> 、猫 <sup>d</sup>
	甘氨酸锌	猪、犬 <sup>d</sup> 、猫 <sup>d</sup>
	丙酸锌	猪、牛和家禽
	硫酸钾	反刍动物、畜禽 <sup>e</sup>
	三氧化二铁、氧化铜	反刍动物
	碳酸钴	反刍动物、猫、狗
	稀土（铈和镧）壳糖胺螯合盐	畜禽、鱼和虾
	乳酸锌（ $\alpha$ -羟基丙酸锌）	生长育肥猪、家禽、犬 <sup>d</sup> 、猫 <sup>d</sup>
	葡萄糖酸铜、葡萄糖酸锰、葡萄糖酸锌、葡萄糖酸亚铁、焦磷酸铁、碳酸镁、甘氨酸钙、二氢碘酸乙二胺（EDDI）	犬 <sup>d</sup> 、猫 <sup>d</sup>
酶制剂 <sup>2</sup>	淀粉酶（产自黑曲霉、解淀粉芽孢杆菌、地衣芽孢杆菌、枯草芽孢杆菌、长柄木霉 <sup>3</sup> 、米曲霉、大麦芽、酸解支链淀粉芽孢杆菌）	青贮玉米、玉米、玉米蛋白粉、豆粕、小麦、次粉、

类别	通用名称	适用范围
		大麦、高粱、燕麦、豌豆、木薯、小米、大米
	$\alpha$ -半乳糖苷酶（产自黑曲霉）	豆粕
	纤维素酶（产自长柄木霉 <sup>3</sup> 、黑曲霉、孤独腐质霉、绳状青霉）	玉米、大麦、小麦、麦麸、黑麦、高粱
	$\beta$ -葡聚糖酶（产自黑曲霉、枯草芽孢杆菌、长柄木霉 <sup>3</sup> 、绳状青霉、解淀粉芽孢杆菌、棘孢曲霉）	小麦、大麦、菜籽粕、小麦副产物、去壳燕麦、黑麦、黑小麦、高粱
	葡萄糖氧化酶（产自特异青霉、黑曲霉）	葡萄糖
	脂肪酶（产自黑曲霉、米曲霉）	动物或植物源性油脂或脂肪
	麦芽糖酶（产自枯草芽孢杆菌）	麦芽糖
	$\beta$ -甘露聚糖酶（产自迟缓芽孢杆菌、黑曲霉、长柄木霉 <sup>3</sup> ）	玉米、豆粕、椰子粕
	$\beta$ -半乳糖苷酶（产自黑曲霉）、菠萝蛋白酶（源自菠萝）、木瓜蛋白酶（源自木瓜）、胃蛋白酶（源自猪、小牛、小羊、禽类的胃组织）、胰蛋白酶（源自猪或牛的胰腺）	犬 <sup>d</sup> 、猫 <sup>d</sup>
	果胶酶（产自黑曲霉、棘孢曲霉）	玉米、小麦
	植酸酶（产自黑曲霉、米曲霉、长柄木霉 <sup>3</sup> 、毕赤酵母）	玉米、豆粕等含有植酸的植物籽实及其加工副产品类饲料原料
	蛋白酶（产自黑曲霉、米曲霉、枯草芽孢杆菌、长柄木霉 <sup>3</sup> ）	植物和动物蛋白
	角蛋白酶（产自地衣芽孢杆菌）	植物和动物蛋白
	木聚糖酶（产自米曲霉、孤独腐质霉、长柄木霉 <sup>3</sup> 、枯草芽孢杆菌、绳状青霉、黑曲霉、毕赤酵母）	玉米、大麦、黑麦、小麦、高粱、黑小麦、燕麦
微生物	地衣芽孢杆菌、枯草芽孢杆菌、两歧双歧杆菌、粪肠球菌、屎肠球菌、乳酸肠球菌、嗜酸乳杆菌、干酪乳杆菌、德式乳杆菌乳酸亚种（原名：乳酸乳杆菌）、植物乳杆菌、乳酸片球菌、戊糖片球菌、产朊假丝酵母、酿酒酵母、沼泽红假单胞菌、婴儿双歧杆菌、长双歧杆菌、短双歧杆菌、青春双歧杆菌、嗜热链球菌、罗伊氏乳杆菌、动物双歧杆菌、黑曲霉、米曲霉、迟缓芽孢杆菌、短小芽孢杆菌、纤维二糖乳杆菌、发酵乳杆菌、德氏乳杆菌保加利亚亚种（原名：	养殖动物

类别	通用名称	适用范围
	保加利亚乳杆菌)	
	产丙酸丙酸杆菌、布氏乳杆菌	青贮饲料、牛饲料
	副干酪乳杆菌	青贮饲料
	凝结芽孢杆菌	肉鸡、生长育肥猪和水产养殖动物、犬 <sup>d</sup> 、猫 <sup>d</sup>
	侧孢短芽孢杆菌（原名：侧孢芽孢杆菌）	肉鸡、肉鸭、猪、虾
非蛋白氮	尿素、碳酸氢铵、硫酸铵、液氨、磷酸二氢铵、磷酸氢二铵、异丁叉二脲、磷酸脲、氯化铵、氨水	反刍动物
抗氧化剂	乙氧基喹啉、丁基羟基茴香醚（BHA）、二丁基羟基甲苯（BHT）、没食子酸丙酯、特丁基对苯二酚（TBHQ）、茶多酚、维生素 E、L-抗坏血酸-6-棕榈酸酯	养殖动物
	迷迭香提取物	宠物
	硫代二丙酸二月桂酯、甘草抗氧化物、D-异抗坏血酸、D-异抗坏血酸钠、植酸（肌醇六磷酸）	犬 <sup>d</sup> 、猫 <sup>d</sup>
	L-抗坏血酸钠 <sup>h</sup>	养殖动物
防腐剂、防霉剂和调节剂	甲酸、甲酸铵、甲酸钙、乙酸、双乙酸钠、丙酸、丙酸铵、丙酸钠、丙酸钙、丁酸、丁酸钠、乳酸、苯甲酸、苯甲酸钠、山梨酸、山梨酸钠、山梨酸钾、富马酸、柠檬酸、柠檬酸钾、柠檬酸钠、柠檬酸钙、酒石酸、苹果酸、磷酸、氢氧化钠、碳酸氢钠、氯化钾、碳酸钠	养殖动物
	乙酸钙	畜禽
	焦磷酸钠、三聚磷酸钠、六偏磷酸钠、焦磷酸一氢三钠	宠物
	焦亚硫酸钠	宠物、猪 <sup>c</sup>
	二甲酸钾	猪
	氯化铵	反刍动物
	亚硫酸钠	青贮饲料
	亚硝酸钠 <sup>6</sup> 、氢氧化钙、乙二胺四乙酸二钠、乳酸钠、乳酸钙、乳酸链球菌素、ε-聚赖氨酸盐酸盐、脱氢乙酸、脱氢乙酸钠、琥珀酸、碳酸钾、焦磷酸二氢二钠、谷氨酰胺转氨酶、磷酸三钠、葡萄糖酸钠	犬 <sup>d</sup> 、猫 <sup>d</sup>
着色剂	辣椒红、β-阿朴-8'-胡萝卜素醛、β-阿朴-8'-胡萝卜素酸乙酯、β，	家禽

类别	通用名称		适用范围
	β-胡萝卜素-4, 4-二酮（斑蝥黄）		
	β-胡萝卜素		家禽、犬 <sup>d</sup> 、猫 <sup>d</sup>
	天然叶黄素（源自万寿菊）		家禽、水产养殖动物、犬 <sup>d</sup> 、猫 <sup>d</sup>
	红法夫酵母		水产养殖动物、观赏鱼
	虾青素		水产养殖动物、观赏鱼、犬 <sup>d</sup> 、猫 <sup>d</sup>
	柠檬黄、日落黄、诱惑红、胭脂红、靛蓝、二氧化钛、焦糖色（亚硫酸铵法）、赤藓红		宠物
	胭脂虫红、氧化铁红、高粱红、红曲红、红曲米、叶绿素铜钠（钾）盐、栀子蓝、栀子黄、新红、酸性红、萝卜红、番茄红素		犬 <sup>d</sup> 、猫 <sup>d</sup>
	苋菜红、亮蓝		宠物和观赏鱼
调味和诱食物质 <sup>4</sup>	甜味物质	糖精、糖精钙、新甲基橙皮苷二氢查耳酮	猪
		索马甜 <sup>a</sup>	养殖动物
		海藻糖、琥珀酸二钠、甜菊糖苷、5'-呈味核苷酸二钠	犬 <sup>d</sup> 、猫 <sup>d</sup>
		糖精钠、山梨糖醇	养殖动物
	香味物质	食品用香料 <sup>5</sup> 、牛至香酚	
	其他	谷氨酸钠、5'-肌苷酸二钠、5'-鸟苷酸二钠、大蒜素	
粘结剂、抗结块剂、稳定剂和乳化剂	α-淀粉、三氧化二铝、可食脂肪酸钙盐、可食用脂肪酸单/双甘油酯、硅酸钙、硅铝酸钠、硫酸钙、硬脂酸钙、甘油脂肪酸酯、聚丙烯酸树脂II、山梨醇酐单硬脂酸酯、聚氧乙烯 20 山梨醇酐单油酸酯、丙二醇、卵磷脂、海藻酸钠、海藻酸钾、海藻酸铵、琼脂、瓜尔胶、阿拉伯树胶、黄原胶、甘露糖醇、木质素磺酸盐、羧甲基纤维素钠、聚丙烯酸钠、山梨醇酐脂肪酸酯、蔗糖脂肪酸酯、焦磷酸二钠、单硬脂酸甘油酯、聚乙二醇 400、磷脂、聚乙二醇甘油蓖麻酸酯		养殖动物
	二氧化硅（沉淀并经干燥的硅酸） <sup>a</sup>		养殖动物
	丙三醇		猪、鸡和鱼、犬 <sup>d</sup> 、猫 <sup>d</sup>
	硬脂酸		猪、牛和家禽、犬 <sup>d</sup> 、猫 <sup>d</sup>
	卡拉胶、决明胶、刺槐豆胶、果胶、微晶纤维素		宠物
	羟丙基纤维素、硬脂酸镁、不溶性聚乙烯吡咯烷酮（PVPP）、		犬 <sup>d</sup> 、猫 <sup>d</sup>

类别	通用名称	适用范围
	羧甲基淀粉钠、结冷胶、醋酸酯淀粉、葡萄糖酸- $\delta$ -内酯、羟丙基二淀粉磷酸酯、羟丙基淀粉、酪蛋白酸钠、丙二醇脂肪酸酯、中链甘油三酯、亚麻籽胶、乙酰化二淀粉磷酸酯、麦芽糖醇、可得然胶、聚葡萄糖	
	辛烯基琥珀酸淀粉钠 <sup>a</sup>	养殖动物
	乙基纤维素 <sup>f</sup> 、聚乙烯醇 <sup>f</sup>	养殖动物
	紫胶 <sup>h</sup>	养殖动物
	羟丙基甲基纤维素 <sup>c</sup>	养殖动物 <sup>h</sup>
多糖和寡糖	低聚木糖（木寡糖）	鸡、猪、水产养殖动物、犬 <sup>c</sup> 、猫 <sup>c</sup>
	低聚壳聚糖	猪、鸡和水产养殖动物、犬 <sup>c</sup> 、猫 <sup>c</sup>
	半乳甘露寡糖	猪、肉鸡、兔和水产养殖动物
	果寡糖、甘露寡糖、低聚半乳糖	养殖动物
	壳寡糖（寡聚 $\beta$ -（1-4）-2-氨基-2-脱氧-D-葡萄糖）（ $n=2\sim 10$ ）	猪、鸡、肉鸭、虹鳟鱼、犬 <sup>c</sup> 、猫 <sup>c</sup>
	$\beta$ -1, 3-D-葡聚糖（源自酿酒酵母）	水产养殖动物、犬 <sup>c</sup> 、猫 <sup>c</sup>
	N,O-羧甲基壳聚糖	猪、鸡
其他	天然类固醇萨酒皂角苷（源自丝兰）、天然三萜烯皂角苷（源自可来雅皂角树）、二十二碳六烯酸（DHA）	养殖动物
	糖萜素（源自山茶籽饼）	猪和家禽
	乙酰氧肟酸	反刍动物
	苜蓿提取物（有效成分为苜蓿多糖、苜蓿黄酮、苜蓿皂甙）	仔猪、生长育肥猪、肉鸡、犬 <sup>d</sup> 、猫 <sup>d</sup>
	杜仲叶提取物（有效成分为绿原酸、杜仲多糖、杜仲黄酮）	生长育肥猪、鱼、虾
	淫羊藿提取物（有效成分为淫羊藿苷）	鸡、猪、绵羊、奶牛
	共轭亚油酸	仔猪、蛋鸡、犬 <sup>d</sup> 、猫 <sup>d</sup>
	4, 7-二羟基异黄酮（大豆黄酮）	猪、产蛋家禽
	地顶孢霉培养物	猪、鸡

类别	通用名称	适用范围
	紫苏籽提取物（有效成分为 $\alpha$ -亚油酸、亚麻酸、黄酮）	猪、肉鸡和鱼、犬 <sup>d</sup> 、猫 <sup>d</sup>
	硫酸软骨素	猫、狗
	植物甾醇（源于大豆油/菜籽油，有效成分为 $\beta$ -谷甾醇、菜油甾醇、豆甾醇）	家禽、生长育肥猪、犬 <sup>d</sup> 、猫 <sup>d</sup>
	透明质酸、透明质酸钠、乳铁蛋白、酪蛋白磷酸肽（CPP）、酪蛋白钙肽（CCP）、二十碳五烯酸（EPA）、二甲基砷（MSM）、硫酸软骨素钠	犬 <sup>d</sup> 、猫 <sup>d</sup>

**备注：**

1. 所列物质包括无水和结晶水形态；
2. 酶制剂的适用范围为典型底物，仅作为推荐，并不包括所有可用底物；
3. 目录中所列长柄木霉亦可称为长枝木霉或李氏木霉；
4. 以一种或多种调味物质或诱食物质添加载体等复配而成的产品可称为调味剂或诱食剂，其中：以一种或多种甜味物质添加载体等复配而成的产品可称为甜味剂；以一种或多种香味物质添加载体等复配而成的产品可称为香味剂；
5. 食品用香料见《食品安全国家标准 食品添加剂使用卫生标准》（GB 2760）中食品用香料名单。
6. 农业农村部 21 号公告规定，亚硝酸钠仅限用于水分含量 $\geq 20\%$ 的宠物饲料，最高限量为 100 mg/kg。
  - a. 2014 年 7 月 24 日中华人民共和国农业部公告第 2134 号修订；
  - b. 2015 年 6 月 3 日中华人民共和国农业部公告第 2264 号批准进口饲料添加剂丙酸铬用于奶牛；
  - c. 2017 年 12 月 28 日中华人民共和国农业部公告第 2634 号修订；
  - d. 2018 年 4 月 27 日中华人民共和国农业农村部公告第 21 号修订；
  - e. 2018 年 8 月 17 日中华人民共和国农业农村部公告第 53 号修订；
  - f. 2019 年 11 月 18 日中华人民共和国农业农村部公告第 231 号修订；
  - g. 2020 年 8 月 26 日中华人民共和国农业农村部公告第 325 号增补氨基酸锌络合物（氨基酸为 L-赖氨酸和谷氨酸）饲料添加剂品种进入《饲料添加剂品种目录》；
  - h. 2020 年 11 月 16 日中华人民共和国农业农村部公告第 356 号修订。

# Approved Feed Additives

**Table I**

Class	Common name of feed additive	Usage
Amino Acids, their salts and analogues	L-Lysine, Liquid L-Lysine (L-Lysine: min. 50%), L-Lysine Monohydrochloride, L-Lysine Sulfate and its by-products from fermentation (Source: <i>Corynebacterium glutamicum</i> , <i>Brevibacterium lactofermentum</i> , L-Lysine: min. 51 %), DL-Methionine, L-Threonine, L-Tryptophan, L-Arginine, L-Arginine Monohydrochloride, Glycine, L-Tyrosine, L-Alanine, Aspartic Acid, L-Leucine, Isoleucine, L-Proline, Phenylalanine, Serine, L-Cysteine, L-Histidine, Glutamic Acid, Glutamine, Valine, Cystine, Taurine	All species or categories of animals
	Cysteamine Hydrochloride	Livestock, poultry
	L-Cysteine Monohydrochloride	Dogs, cats
	Methionine Hydroxy Analogue	Swine, chicken , cattle or aquaculture animals , dogs, cats, ducks
	Methionine Hydroxy Analogue Calcium	Swine, chicken , cattle or aquaculture animals , dogs, cats
	Isoperopyl Ester of Hydroxy Analogue of Methionine	Ruminant
	N-Hydroxymethyl Methionine Calcium	Ruminant
	1-Aminocyclopropane-1-Carboxylic Acid	Chicken
Vitamins, provitamins, chemically well defined substances having a similar biological effect to vitamins	Vitamin A, Vitamin A Acetate, Retinol Palmitate, beta-Carotene, Thiamin Hydrochloride (Vitamin B <sub>1</sub> ), Thiamin Mononitrate (Vitamin B <sub>1</sub> ), Riboflavin (Vitamin B <sub>2</sub> ) , Pyridoxine Hydrochloride (Vitamin B <sub>6</sub> ), Cyanocobalamin (Vitamin B <sub>12</sub> ), L-Ascorbic Acid (Vitamin C), Calcium L- Ascorbate, Sodium L-Ascorbate, L-Ascorbyl-2-Phosphate, 6-Palmityl-L-Ascorbic Acid, Vitamin D <sub>2</sub> , Vitamin D <sub>3</sub> , Nature Vitamin E, dl-alpha-Tocopherol, dl-alpha-Tocopherol Acetate, Menadione Sodium Bisulfite (Vitamin K <sub>3</sub> ), Menadione Dimethylpyrimidinol Bisulfite, Menadione Nicotinamide Bisulfite, Nicotinic Acid, Niacinamide, D-Pantothenyl Alcohol, D-Calcium Pantothenate, DL-Calcium Pantothenate, Folic Acid, D-Biotin, Choline Chloride, Inositol, L-Carnitine, L-Carnitine Hydrochloride, Betaine, Betaine Hydrochloride	All species or categories of animals
	25-Hydroxyl cholecalciferol (25-Hydroxy Vitamin D <sub>3</sub> )	Swine, poultry
	L-Carnitine- L-Tartrate	Pets



	Vitamin K <sub>1</sub> , Choline Bitartrate	Dogs, cats
Minerals and Their Complexes (or Chelates) <sup>1</sup>	Sodium Chloride, Sodium Sulfate, Monosodium Phosphate, Disodium Phosphate, Monopotassium Phosphate, Dipotassium Phosphate, Calcium Carbonate, Calcium Chloride, Dicalcium Phosphate, Monocalcium Phosphate, Tricalcium Phosphate, Calcium Lactate, Calcium Gluconate, Magnesium Sulfate, Magnesium Oxide, Magnesium Chloride, Ferrous Citrate, Ferrous Fumarate, Ferrous Lactate, Ferrous Sulfate, Ferrous Chloride, Ferric Chloride, Ferrous Carbonate, Copper Chloride, Copper Sulfate, Basic Copper Chloride, Zinc Oxide, Zinc Chloride, Zinc Carbonate, Zinc Sulfate, Zinc Acetate, Basic Zinc Chloride, Manganese Chloride, Manganese Oxide, Manganese Sulfate, Manganese Carbonate, Manganese Phosphate (Dibasic), Potassium Iodide, Sodium Iodide, Potassium Iodate, Calcium Iodate, Cobalt Chloride, Cobalt Acetate, Cobalt Sulfate, Sodium Selenite, Sodium Molybdate, Copper Methionine Complex (or Chelate), Ferric Methionine Complex (or Chelate), Manganese Methionine Complex (or Chelate), Zinc Methionine Complex (or Chelate), Copper Lysine complex (or Chelate), Zinc Lysine Complex (or Chelate), Copper Glycine Complex (or Chelate), Ferrous Glycine Complex (or Chelate), Copper Yeast Complex, Ferrous Yeast Complex, Manganese Yeast Complex, Selenium Yeast Complex, Copper Amino Acid Complex (anion of any amino acid derived from hydrolysed plant protein), Iron Amino Acid Complex (anion of any amino acid derived from hydrolysed plant protein), Manganese Amino Acid Complex (anion of any amino acid derived from hydrolysed plant protein), Zinc Amino Acid Complex (anion of any amino acid derived from hydrolysed plant protein)	All species or categories of animals
	Zinc Lysine And Glutamic Acid Complex	weaned piglets, broilers, laying hens
	Copper Proteinate, Iron Proteinate, Zinc Proteinate, Manganese Proteinate	All species or categories of animals, not including ruminant
	Zinc Methionine Hydroxy Analogue Complex (or Chelate), Manganese Methionine Hydroxy Analogue Complex (or Chelate), Copper Methionine Hydroxy Analogue Complex (or Chelate)	Dairy cow, beef cattle, poultry or swine
	Chromium Nicotinate, Chromium Yeast Complex, Chromium Methionine Chelate, Chromium Tripicolinate	Swine, dogs, cats
	Chromium Propionate	Swine, Dairy cow, dogs, cats
	Zinc Glycinate	Swine, dogs, cats
	Zinc Propionate	Swine, cattle or poultry
	Potassium Sulfate,	Ruminant Poultry, livestock
	Iron Oxide, Copper Oxide	Ruminant

	Cobalt Carbonate	Ruminant, dogs or cats
	Lathanum/Cerium Chintosan Chelates	Poultry , livestock ,fish or shrimp
	Zinc Lactate ( $\alpha$ -Hydroxy Propionic Acid Zinc)	Growing-Finishing swine, poultry, dogs, cats
	Copper Gluconate, Manganese Gluconate, Zinc Gluconate, Ferrous Gluconate, Ferric Pyrophosphate, Magnesium Carbonate, Calcium Glycinate, Ethylenediamine Dihydriodide (EDDI)	Dogs, cats
Enzymes <sup>2</sup>	Amylase (Source: <i>Aspergillus niger</i> , <i>Bacillus amyloliquefaciens</i> , <i>Bacillus licheniformis</i> , <i>Bacillus subtilis</i> , <i>Trichoderma longibrachiatum</i> <sup>3</sup> , <i>Aspergillus oryzae</i> , Barley malt, <i>Bacillus acidopullulyticus</i> )	Corn silage, corn, corn gluten feed, soybean meal, wheat, wheat middlings, barley, grain sorghum, oat, pea, tapioca, millet, rice
	$\alpha$ -Galactosidase (Source: <i>Aspergillus niger</i> )	Soybean meal
	Cellulase (Source: <i>Trichoderma longibrachiatum</i> <sup>3</sup> , <i>Aspergillus niger</i> , <i>Humicola insolens</i> , <i>Penicillium funiculosum</i> )	Corn, barley, wheat, wheat bran, rye, grain sorghum
	$\beta$ -Glucanase (Source: <i>Aspergillus niger</i> , <i>Bacillus subtilis</i> , <i>Trichoderma longibrachiatum</i> <sup>3</sup> , <i>Penicillium funiculosum</i> , <i>Bacillus amyloliquefaciens</i> , <i>Aspergillus aculeatus</i> )	Wheat, barley, canola meal, wheat byproduct, oat groats, rye, triticale, grain sorghum
	Glucose Oxidase (Source: <i>Penicillium notatum</i> , <i>Aspergillus niger</i> )	Glucose
	Lipase (Source: <i>Aspergillus niger</i> , <i>Aspergillus oryzae</i> )	Plant and animal sources of fats and oils
	Maltase (Source: <i>Bacillus subtilis</i> )	maltose
	$\beta$ -Mannanase (Source: <i>Bacillus lentus</i> , <i>Aspergillus niger</i> , <i>Trichoderma longibrachiatum</i> <sup>3</sup> )	Corn, soybean meal, guar meal
	$\beta$ -Galactosidase (Source: <i>Aspergillus niger</i> ), Bromelain (Source: <i>Ananas</i> spp.), Papain (Source: <i>Carica papaya</i> L.), Pepsin (Source: Hog, Calf, Goat (kid) or Poultry Stomach), Trypsin (Source: Porcine or Bovine Pancreas)	Dogs, cats
	Pectinase (Source: <i>Aspergillus niger</i> , <i>Aspergillus aculeatus</i> )	Corn, wheat
Phytase (Source: <i>Aspergillus niger</i> , <i>Aspergillus oryzae</i> , <i>Trichoderma longibrachiatum</i> <sup>3</sup> , <i>Pichia pastoris</i> )	Vegetable seeds which contain phytic acids such as Corn and soybean	

	Protease (Source: <i>Aspergillus niger</i> , <i>Aspergillus oryzae</i> , <i>Bacillus subtilis</i> , <i>Trichoderma longibrachiatum</i> <sup>3</sup> )	Plant and animal proteins
	Keratinase (Source: <i>Bacillus licheniformis</i> )	Plant and animal proteins
	Xylanase (Source: <i>Aspergillus oryzae</i> , <i>Humicola insolens</i> , <i>Trichoderma longibrachiatum</i> <sup>3</sup> , <i>Bacillus subtilis</i> , <i>Penicillium funiculosum</i> , <i>Aspergillus niger</i> , <i>Pichia pastoris</i> )	Corn, barley, rye, wheat, grain sorghum, triticale, oats
Live Micro-organisms	<i>Bacillus licheniformis</i> , <i>Bacillus subtilis</i> , <i>Bifidobacterium bifidum</i> , <i>Enterococcus faecalis</i> , <i>Enterococcus faecium</i> , <i>Enterococcus lactis</i> , <i>Lactobacillus acidophilus</i> , <i>Lactobacillus casei</i> , <i>Lactobacillus delbrueckii subsp. Lactis</i> (also known as <i>Lactobacillus lactis</i> ), <i>Lactobacillus plantarum</i> , <i>Pediococcus acidilactici</i> , <i>Pediococcus pentosaceus</i> , <i>Candida utilis</i> , <i>Saccharomyces cerevisiae</i> , <i>Rhodopseudomonas palustris</i> , <i>Bifidobacterium infantis</i> , <i>Bifidobacterium longum</i> , <i>Bifidobacterium breve</i> , <i>Bifidobacterium adolescentis</i> , <i>Streptococcus thermophilus</i> , <i>Lactobacillus reuteri</i> , <i>Bifidobacterium animalis</i> , <i>Aspergillus niger</i> , <i>Aspergillus Oryzae</i> , <i>Bacillus lentus</i> , <i>Bacillus pumilus</i> , <i>Lactobacillus cellobiosus</i> , <i>Lactobacillus fermentum</i> , <i>Lactobacillus delbrueckii subsp. Bulgaricus</i> (also know as <i>Lactobacillus bulgaricus</i> )	All species or categories of animals
	<i>Propionibacterium acidipropionis</i> , <i>Lactobacillus buchneri</i>	Silage, cattle
	<i>Lactobacillus paracasei</i>	Silage
	<i>Bacillus coagulans</i>	Broiler, growing-finishing swines or aquaculture animals, dogs, cats
	<i>Brevibacillus laterosporus</i> (also known as <i>Bacillus laterosporus</i> )	Broiler, duck for fattening, swine or shrimp
Non-protein Nitrogen	Urea, Ammonium Bicarbonate, Ammonium Sulfate, Liquid Ammonia, Mono Ammonium Phosphate, Diammonium Phosphate, Isobutylidene Diurea, Urea Phosphate, Ammonium Chloride, Ammonium Hydroxide	Ruminant
Antioxidants	Ethoxyquin, Butylated Hydroxyanisole (BHA), Butylated Hydroxytoluene (BHT), Propyl Gallate, Tertiary Butyl Hydroquinone (TBHQ), Tea Polyphenol, alpha-Tocopherol (Vitamin E), 6-Palmitoyl-L-Ascorbic Acid	All species or categories of animals
	Rosemary Extract	Pets
	Dilauryl Thiodipropionate, Antioxidant of Glycyrrhiza, D-Lsoascorbic Acid, Sodium D-Lsoascorbate, Phytic Acid (Inositol Hexaphosphoric Acid)	Dogs, cats
	Sodium L-Ascorbate	All species or categories of animals

Preservatives and Acidity Regulators	Formic Acid, Ammonium Formate, Calcium Formate, Acetic Acid, Sodium Diacetate, Propionic Acid, Ammonium Propionate, Sodium Propionate, Calcium Propionate, Butyric Acid, Sodium Butyrate, Lactic Acid, Benzoic Acid, Sodium Benzoate, Sorbic Acid, Sodium Sorbate, Potassium Sorbate, Fumaric Acid, Citric Acid, Potassium Citrate, Sodium Citrate, Calcium Citrate, Tartaric Acid, Malic Acid, Phosphoric Acid, Sodium Hydroxide, Sodium Bicarbonate, Potassium Chloride, Sodium Carbonate	All species or categories of animals
	Calcium Acetate	Livestock, poultry
	Sodium Pyrophosphate, Sodium Tripolyphosphate, Sodium Hexametaphosphate, Trisodium Monohydrogen Diphosphate	Pets
	Sodium Metabisulphite	Pets, swine
	Potassium Diformate	Swine
	Ammonium Chloride	Ruminant
	Sodium Sulphite	Silage
	Sodium Nitrite, Calcium Hydroxide, Disodium Ethylene-diamine-tetra-acetate, Sodium Lactate, Calcium Lactate, Nisin, $\epsilon$ -Polylysine Hydrochloride, Dehydroacetic Acid, Sodium Dehydroacetate, Succinic Acid, Potassium Carbonate, Disodium Dihydrogen Pyrophosphate, Glutamine Transaminase, Trisodium Orthophosphate, Sodium Gluconate	Dogs, cats
Coloring Agents	Capsanthin, beta-Apo-8'-Carotenal, beta-Apo-8'-Carotenoic Acid Ethyl Ester, beta, beta-Carotene- 4,4-Diketone (Canthaxanthin)	Poultry
	beta-Carotene	Poultry, dogs, cats
	Natural Xanthophyll (Marigold Extract)	Poultry, aquaculture animals, dogs, cats
	<i>Xanthophyllomyces dendrorhous</i> (Anamorph <i>Phaffia rhodozyma</i> )	Aquaculture animals, ornamental fish,
	Astaxanthin	Aquaculture animals, ornamental fish, dogs, cats
	Tartrazine, Sunset Yellow, Allura Red, Ponceau 4R, Indigotine, Titanium Oxide, Caramel Colour class IV, Erythrosine	Pets
	Carmine Cochineal, Iron Oxide Red, Sorghum Red, Monascus Red, Red Kojic Rice, Chlorophyllin Copper Complex (Sodium and, Potassium Salts), Gardenia Blue, Gardenia Yellow, New Red, Carmoisine, Radish Red, Lycopene	Dogs, cats
	Amaranth, Brilliant Blue	Pets, ornamental fish

Flavouring and Appetising Substances	Sweetening Substances	Saccharin, Calcium Saccharin, Neohesperidin Dihydrochalcone	Swine
		Thaumatococcus	All species or categories of animals
		Trehalose, Disodium Succinate, Steviol Glycosides, Disodium 5'-Ribonucleotide	Dogs, cats
		Sodium Saccharin, Sorbitol	All species or categories of animals
	Flavouring Substances	Approved Food Flavoring Agents <sup>4</sup> , Oregano Carvacrol (Origanum aetheroleum)	
Others	Sodium Glutamate, Disodium 5'-Inosinate, Disodium 5'-Guanylate, Garlicin (Allimin)		
Binders, Anticaking, Stabilizing and Emulsifying agents	alpha- Starch, Aluminum Oxide, Calcium Salt of Edible Fatty Acid, Mono- /di-glycerides of Edible Fatty Acids, Calcium Silicate, Sodium Silico Aluminate, Calcium Sulfate, Calcium Stearate, Glycerine Fatty Acid Ester, Polyacrylic Resin II, Sorbitan Monostearate, Polyoxyethylene(20) Sorbitan Mono- oleate, Propylene Glycol, Lecithin, Sodium Alginate, Potassium Alginate, Ammonium Alginate, Agar-agar, Guar gum, Acacia, Xanthan Gum, Mannitol, Lignin Sulfonate, Sodium Carboxymethylcellulose, Sodium Polyacrylate, Sorbitol Esters of Fatty Acid, Sucrose Esters of Fatty Acid, Sodium Acid Pyrophosphate, Glyceryl Monostearate, Polyethylene Glycol 400, Lecithin, Glyceryl Polyethylenglycol Ricinoleate		All species or categories of animals
	Silicon Dioxide (Silicic acid, precipitated and dried)		All species or categories of animals
	Glycerine		Swine, chicken or fish, dogs, cats
	Stearic Acid		Swine, cattle or poultry, dogs, cats
	Carrageenan, Cassia Gum, Carob Bean Gum, Pectin, Microcrystallin Cellulose		Pets
	Hydroxypropylcellulose, Magnesium Stearate, Insoluble Polyvinylpyrrolidone (PVPP), Sodium Carboxy Methyl Starch, Gellan Gum, Starch Acetate, Glucono delta-Lactone, Hydroxypropyl Distarch Phosphate, Hydroxypropyl Starch, Sodium Caseinate, Propylene Glycol Esters of Fatty Acids, Medium Chain Triglycerides, Linseed Gum, Acetylated Distarch Phosphate, Maltitol, Curdlan, Polydextrose		Dogs, cats
	Starch sodium octenylsuccinate		All species or categories of animals
	Ethyl cellulose, Polyvinyl alcohol,		All species or categories of animals
	Shellac, Hydroxypropylmethyl cellulose		All species or categories of animals
Polysaccharides and Olig-	Xylo-oligosaccharides		Chicken, swine or aquaculture animals, dogs,

osaccharides		cats
	Low-molecular-weight Chitosan	Swine, chicken or aquaculture animals, dogs, cats
	Galactomanno-oligosaccharides	Swine, broiler, rabbit or aquaculture animals
	Fructo-oligosaccharides, Manno-oligosaccharides, Galacto-oligosaccharides	All species or categories of animals
	Chitosan-oligosaccharide (oligo(beta-(1,4)-2-amino-2-deoxy-D-glucose)) (n=2~10)	Swine, chicken, duck for fattening or rainbow trout, dogs, cats
	$\beta$ -1, 3-D-glucan (Source: <i>Saccharomyces cerevisiae</i> )	Aquaculture animals, dogs, cats
	N,O-carboxymethyl chitosan	Swine, chicken
Others	YUCCA (Yucca Schidigera Extract), Triterpenic saponins (Quillaja Saponaria Extract), Doco- sahexaenoic Acid (DHA)	All species or categories of animals
	Sacchariterpenin (Originated from Seed Cake of <i>Camellia L.</i> )	Swine, poultry
	Acetohydroxamic Acid	Ruminant
	<i>Medicago sativa</i> Extract (Active substance: alfalfa polysaccharide, alfalfa flavonoid, alfalfa saponin)	Piglet, growing-finishing swine, broiler, dogs, cats
	<i>Eucommia Ulmoides</i> Extract (Active substance: Chlorogenic acid, Eucommia polysaccharide, Eucommia flavonoids)	Growing-finishing swine, fish or shrimp
	<i>Epimedium</i> Extract (Active substance: Icrainin)	Chicken, swine, sheep or cow
	Conjugated Linoleic Acid	Piglet, laying hen, dogs, cats
	4, 7-Dihydroxyisoflavone (Daidzein)	Swine, laying poultry
	The culture of <i>Acremonium terricola</i>	Swine, chicken
	Extrat of <i>Perilla frutescens</i> seed (Active substance: $\alpha$ -Linoleic Acid, Linolenic acid, Flavonoids)	Swine, broiler or fish, dogs, cats
	Chondroitin Sulfate	Cats, dogs
	Phytosterol (Originated from soybean oil or rapeseed oil, Active substance: $\beta$ -Sitosterol, Campesterol, Stigmasterol)	Poultry, growing-finishing swine, dogs, cats
	Hyaluronic Acid, Sodium Hyaluronate, Lactoferrin, Casein Phosphopeptides (CPP), Casein Calcium Peptide (CCP), Eicosapentaenoic Acid (EPA), Methylsulfonylmethane (MSM), Sodium Chondroitin Sulfate	Dogs, cats

**Notes:**

1. All substances listed may be in anhydrous or hydrated form.
2. The usage of enzymes provides the typical substrates for guidance only and does not cover all substrates applicable.
3. *Trichoderma longibrachiatum* listed may also be called *T. resei* or *T. viride*.
4. “Flavouring” or “Appetising Substances” are known as products that combined one or several flavouring substances or appetising substances with carriers. “Flavouring” means one or several sweetening substances combined with carriers, and “Appetising Substances” means one or several flavouring substances combined with carriers.
5. Approved food flavoring agents are in accordance with the list of food flavoring agents in Hygienic Standards for Uses of Food Additives (GB2760).
6. According to the Announcement of the Ministry of agriculture and rural affairs (No. 2), sodium nitrite is only used for pet feed with water content  $\geq 20\%$ , and the maximum limit is 100 mg/kg.