

## ActiveGranule Zinc Oxide

### 台翔活性氧化锌

#### PRODUCT DESCRIPTION (产品特性)

ActiveGranule®ZnO is a wet process granular active zinc oxide formulated for the rubber industry. It has been used to substitute conventional (French process) in sulfur vulcanization with environmental and economical significance. ActiveGranule®ZnO comes with the binder-less micro-granulates that optimizes good dispersion and improved handling form for a dustless work environment.

台翔活性氧化锌®是台翔化工湿法生产橡胶硫化专用的颗粒状氧化锌。使用台翔活性氧化锌®取代普通(间接法)氧化锌具有最大的环保及经济效应。台翔活性氧化锌®产品形态为无载体微造粒,无粉尘污染,提供橡胶生产的良好分散性及操作性。

#### ADVANTAGES (产品优势)

Comparing to conventional (French process) zinc oxide, ActiveGranule®ZnO 与传统(间接法)氧化锌比较,台翔活性氧化锌

- Reduces the environmental impact of zinc oxide during vulcanization and the service of Vulcanizates  
降低硫化过程中及硫化胶使用时氧化锌对环境的危害
- Utilizes recycled zinc waste as raw material in saving natural resources  
使用回收的锌废料做为原材料,有效节省自然资源
- Responsible care manufacturing with least energy consumption  
环保制程,使用能源少,尽善关怀生态的责任
- Binder-less micro-granulates avoid airborne pollution in the work environment  
无载体微造粒有效降低粉尘污染
- Superior flow quality suitable for automatic transferring and accurate metering among rubber manufacturing process

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优良流动性容易输送及自动计量

- Demands less pigments in colored and semi-transparent rubber

粒径小，透光率高，使用在艳色及半透明橡胶制品中可节省色料

## PROPERTIES (物性)

Appearance/外观	White powder/白色粉末
Chemical Analysis(化学成份)	%
ZnO 氧化锌	Exclusive/台翔自有专利
Pb 铅	≤0.010
Cd 镉	≤0.005
Cu 铜	≤ 0.001
Mn 锰	≤0.001
Specific Gravity/比重 (g/cm <sup>3</sup> )	Approx. 3.8
Volatility/挥发度 (105°C/2hr)	< 3.5%
Storage Stability/储存期	Two year under normal storage conditions/ 在良好的保存环境下可保存两年
Packing/包装	20 kg per paper bag/20 公斤纸袋

## RECOMMENDATIONS AND APPLICATIONS (应用范围及效果)

Although zinc is considered one of the least harmful among heavy metals, soluble zinc compounds are classified as eco-toxic to aquatic organisms. Release of zinc compounds into environment from rubber occurs during production, disposal and recycling of rubber products. In view of increased attitude of protecting the environment, it is desirable to keep the zinc oxide content as low as

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possible during vulcanization and the service of vulcanizates. This not only leads to lower pollution impact but is also advantageous from an economical point of view.

虽然锌属于危害最小的重金属，但溶解的锌化合物对水中生物具环境毒性。橡胶在生产、废弃及回收的过程中有可能释放出锌化合物造成环境危害。随着环保要求的提高，橡胶硫化过程及硫化过程及硫化胶需要降低氧化锌的使用剂量，这不但可减少环境危害，同时具有极高的经济效益。

Various grades of convention (French process) zinc oxide are well-known additives for rubber. They are used primarily as activators or accelerators. One of the problems inherent with their use, however, is that only a relatively small percentage of the zinc oxide is effective and actually undergoes reaction with other components of the compounding mixture. ActiveGranule®ZnO was developed to increase the availability of zinc oxide during vulcanization. Therefore, it could result in reduction of the zinc oxide content without the detrimental effects on curing and physical properties of rubber products and thereby significantly reducing the environmental impact.

传统使用各种不同等级的普通（间接法）氧化锌作为橡胶硫化的活化剂。然而在硫化中，只有极小部分的氧化锌参与反应，造成大部分氧化锌的浪费。台翔活性氧化锌®提高氧化锌实际参与硫化反应的效率。因此可以在较低的氧化锌含量下达到普通（间接法）氧化锌在硫化中的活化效果。具有极高的环保及经济效应。

Another environmental and economical significance of ActiveGranule®ZnO comes from its saving of natural resources by using recycled zinc waste as raw material and its responsible manufacturing process. On the other hand, conventiona (French process) zinc oxide consumes great amount of energy in fuming the zinc ingot. Furthermore, the manufacturing of zinc ingot involves extensive efforts in mining and smelting, which leads pollution impact.

台翔活性氧化锌另一项环保经济效应，来自于使用回收锌变异系数料作为原料，有效节省自然资源。

先过的环保生产制程善尽关怀生态的责任。传统（间接法）氧化锌制程熔融蒸发锌锭，需消耗大量能源，同时锌锭的取得尚需经过采矿、冶炼等一系列环境卫生的生产过程。

ActiveGranule®ZnO with its finer particle size (higher surface area), is easier to disperse in rubber compounding than conventional (French process) zinc oxide. Our proprietary granulating process, unlike industrial common pelleting technique, does not involve grinding and hardening. Thus the

good dispersion capability can be preserved. Rubber vulcanized with good dispersion ActiveGranule®ZnO is usually with better physical properties (higher tensile strength, tear strength, better heat buildup reduction). ActiveGranule®ZnO has been developed to provide improved handling properties. Its superior flow qualities can reduce dusting compared to powdered standard grades. It can be readily transferred in handling equipment and can also be accurately weighed or metered in automated systems. The reduction of dusting is a major advantage in meeting industrial hygiene requirements.

台翔活性氧化锌®粒径小，比表面积大，因此较普通（间接法）氧化锌容易在橡胶中分散。独特的粉体造粒技术，不使用研磨及挤压，因此能保存良好的分散性。采用分散性良好的活性氧化锌可提高胶料的抗张强度、撕裂强度和热导性。与粉体氧化锌比较，无载体微造粒，台翔活性氧化锌容易自动计量及输送，减少工作环境粉尘污染，符合工业卫生要求。

The smaller size of the active ZnO particles provides another advantage in that these particles are essentially transparent to visible light. This allows for production of colored and semi-transparent products of any desired color at a reduced level of pigments dosage. On the other hand, French ZnO having larger particles will require higher pigments dosage to correct its opacity on the cured rubber. There will be savings with the application of active ZnO in the light colored rubber formulation.

台翔活性氧化锌®粒径小具有较高的透光率。使用在艳色及半透明的橡胶制品中可节省色料。普通法(间接法)氧化锌由于粒径较大，透光率低，无法制造半透明橡胶制品。同时在艳色配方中必须追加色料以遮闭白雾本色。

On the EVA application, where zinc oxide acts to lower the decomposition temperature of the blowing agents, zinc oxide content and its thermal conductivity rather than surface catalytic activity determines the efficiency. Therefore, ActiveGranule®ZnO with lower zinc oxide content does not provide cost saving as in vulcanization.

在 EVA 的应用中，使用氧化锌以降低发泡剂分解温度。氧化锌含量及其相对应的热导系数决定降温的效率，因此不适用含氧化锌含量低的台翔活性氧化锌®。

## DOSAGE (使用剂量)

We recommend trying ActiveGranule®ZnO by the same weight in substitution of French process ZnO powder. Dosage can be 3-6phr.

使用台翔活性氧化锌®取代普通法(间接法)氧化锌粉末时，建议先沿用粉末使用剂量，视效果再酌量增减。使用量应介于 3.0 到 6.0phr。

## MANUFACTURER (生产厂商)

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## IMPORTANT NOTE (备注)

TaiXiang has sought to correct the above information. The information and data is for reference purposes only. Concrete information please keeps the standard of testing the kinds.

台翔公司对上述资料已力求正确，各项资料数据仅供参考，具体以实物检测为准。