



PVC Additives

Aryavart Chemicals Pvt. Ltd.

"Adding Value through Performance"



Introduction

- PVC compounding requires the use of a number of additives apart from other major ingredients like Resins, fillers & pigment.
- These additives include heat stabilizers, impact modifiers, processing aids & lubricants which perform important roles either during processing or during the service life of the product.
- Aryavart Chemicals produces a wide variety of PVC Heat Stabilizers which perform the following functions
 - Displacement of activated chlorine atom on the polymer and absorption of HCl.
 - Disrupt double bond sequence.
 - Scavenge free radicals, decompose peroxides, deactivate resin impurities.
 - Formed salts should not affect Service life
- The choice of the Stabilizer used by the processor is dependent on
 - Process requirement and necessary End Use properties
 - Interaction with other formulation components.
 - Meeting regulatory specifications with emphasis on Environmental and Toxicological requirements
 - Cost constrains.



Aryavart Chemicals PVC Additives

- Aryavart Chemicals Pvt. Ltd. (Stabilizers division) was commissioned in the year 1994 at Jalgaon with a high capacity, state of the art plant to manufacture PVC Additives, popularly known as Heat Stabilizers.
- Plant based on land of approx 10000 Sq. mts. with building of approximately 25000 sq ft.
- All plant approvals are in place and is a continuously running plant with a full fledged team
- State of the art plant at Jalgaon, capable of producing approximately 7500MT of above products per annum
- Full fledged R&D set up to continuously work on new products, alternative raw materials and cost reduction



PVC Stabilizers by Product types

- Lead based One Pack Systems – These are Lead based metal complexes along with Stearates and other Lubricants which are in a solid form
- Mixed Metal Liquids – These are Mixed Metal Carboxylates of Ba, Pb, Cd, K, Zn etc which are in a liquid form
- Non Toxic Stabilizers – These are stabilizers based on Ca, Zn and Barium which are blended with the latest generation of Co-stabilizers and Lubricants to make the resultant products completely heavy metal free
- Metallic Stearates – These are soaps of Ca, Ba and Zn with Stearic acid which find application in Masterbatches, Coatings, Rubber etc.

Lead based One Packs for PVC Rigid Pipes & Conduits

- Our One packs give the processor tremendous flexibility to adjust the formulation in relation to filler loading and their specific operating parameters.
- Our products can be used in a wide variety of Pipes such as Pressure and Non Pressure Pipes, electrical conduits, sewage and telecom ducts etc.
- Products grades such as **INSTABEX® C-2, C-81** are non lubricated powders.
- Grades such as **INSTABEX® P-9001, P-9522** are lubricated powders, however the same may require some additional lubrication support during processing.
- Grades such as **INSTABEX® C-333, C-909, F-9016, F-9333** are fully lubricated flakes



Lead Systems for PVC Cables

- The **INSTABEX®** range of Individual stabilizers such as **TBLS, DBLS, LS, CS, DBLPhos and DBLThal** are carefully manufactured under strict process parameters.
- These products are pulverized using the latest pneumatic separation technology and are available in very narrow particle distribution range. This ensures better dispersion and better results. T
- **INSTABEX® C-11 and C-12** are finely designed Lead based one-pack stabilizer system which are used for both insulation and sheathing purposes. These products impart good tensile & elongation strength, are economical and give better performance even at low concentrations with excellent electrical properties.



Lead Systems for PVC Doors and Windows

- We have designed a range of products specifically for the production of profiles like windows and doorframes. These products are designed for filled profiles and contain the latest generation of lubricants to impart smooth finish and to generate better output. These products are also designed to have excellent weathering properties.
- **INSTABEX® C-2(D), F-9504 and C-666(WP)** are our products in this range which are designed specifically for the production of profiles like windows and doorframes as well as other extruded profiles.



Lead Systems for PVC Fittings

- Aryavart introduced the concept of liquid Lead Stabilizers in India for the first time with **INSTABEX® IC** for application in PVC fittings.
- Liquid Leads offer the advantage of low specific gravity of 1.3, dust free handling, easy dispersion and its presence at thermally degradable active site in the molecular chain which prevents the degradation more effectively.
- INSTABEX® IC is a fine blend of Lead and Plasticizers in a balanced manner to obtain high quality fittings with good control on the weight of each shot.
- Keeping in mind, the needs of customers for a product in the powder form, which can be dosed into their existing systems we have also introduced **INSTABEX® MP-9**





Products for other applications

- **INSTABEX® C-325** is a proprietary Barium based one-pack most suitable for shoe compounds, suction hoses, gasket sheets etc which imparts better heat stability and along with chelators, gives clarity & shine.
- **INSTABEX® C-82** is complex DBLPhos based stabilizer which yields a higher thermal stability than TBLS and a better light stability than light DBLPhos which is used in rigid PVC sheets



Other applications....

- **Aryavart** Chemicals have developed a full range of products for Calendered and Coated products.
- **INSTABEX® M series** is a specialty Barium-Cadmium system most suitable for processing PVC at critically high temperatures requiring good clarity. They find applications in different areas such as clear or opaque Calendered Products, Garden hoses and crystal clear suction hoses.
- The **INSTABEX® Z** series is a range of Barium-Cadmium-Zinc complex stabilizer systems. These products find application in areas such as the Top coat of coated and calendered sheets.
- The **INSTABEX® K** series is a stabilizer kicker used with blowing agents for production of PVC foam sheets.





Non Toxic Products for various applications

Most European countries have banned use of Heavy metals in PVC processing and these stabilizers are being phased out and are being replaced with a series of heavy metal free stabilizers as an effective alternative. Aryavart Chemicals over the last 7 years has developed its own line of Non Toxic Stabilizers based on Mixed metals of Ba, Ca, Zn and K in synergistic effect with other Co Stabilizers and Lubricants for a wide variety of applications.

- The **INSTABEX® BZ series** are Ba-Zn complex stabilizers which assures better heat stability and weather ability. They are most suitable for topcoats of ALC to be exported to European countries.
- The **INSTABEX® KC series** is a Potassium-Zinc based kicker system. These products reduce the decomposition temperatures of the blowing agent and provide adequate thermal stability.



Non Toxic Products for Cables

PVC CABLES

- Keeping in pace with developments for environmental concerns, Aryavart has designed its Calcium-Zinc series of PVC Stabilizers for use in PVC Cables.
- **INSTABEX® CZ-981, CZ-990 and CZ-999** are high power stabilizer in powder form, specifically designed for cable compound for higher grade domestic cables.
- They imparts good initial color, better heat stability and electrical properties . These products are suitable for operating temperatures up to 70°C, 90°C and 120°C respectively.
- While designing this product, extreme care has been taken to choose all the ingredients to be free from heavy metals to meet ROHS compliance. All batches are certified for heavy metal analysis.





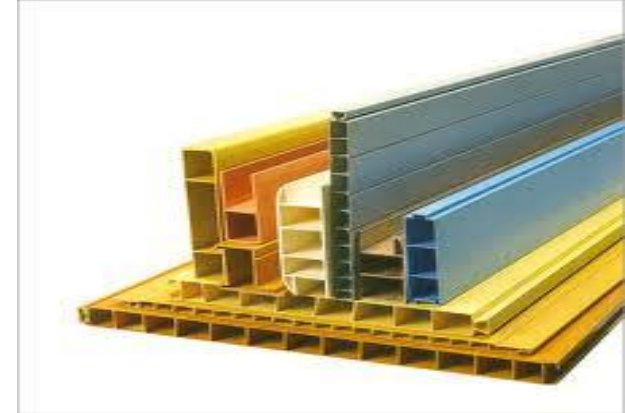
Non Toxic Products for Rigid Extrusion

RIGID PIPES & CONDUITS

- **INSTABEX® CZ-9001** is high power stabilizer in powder form, specifically designed for PVC pipes and electrical conduits. An excellent blend of Stabilizers, Co-Stabilizers and modified new generation lubricants has been so designed to offer best of the synergies to meet the requirements of the processor.

PVC PROFILES

- **INSTABEX® CZ-3001** is high power stabilizer in powder form, specifically designed for PVC profiles. This product has been designed keeping in mind the stringent processing requirements of the processors, the long processing times and their unique product requirements.





Aryavart's emphasis on R&D

Aryavart has put a lot of thought, time, effort and money into its R&D effort to help the designing of its One Pack systems. This is an ongoing process to continuously match product with customer requirements. By producing all its products in situ, it gives a number of advantages to the processor

- Handling losses are reduced and ease of handling due to its non dusting nature
- Formulations changed to emphasis a balanced system with new age lubricants, which in turn has helped reduction in Lead contents.
- Lower Dosages with improved processing parameters and better properties of finished products along with enhanced service life
- It allows the processor to cope with machine specific and Finished Product formulation variations. It allows them to handle variations in the source & quality of Resin and other major raw materials.
- Continuous work is ongoing in expanding our range of Non Toxic Stabilizers as well as on new Organic Stabilizers



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