

Keeping conveyor belts clean with Applied Conveyor Technology

The ACT Group comprises three distinct companies: Applied Conveyor Technology Inc., Air Pollution Control (APC) Inc., and Dustco Inc.

The three companies specialize in different aspects of the bulk handling industry and venture into different avenues of environmental control. Formed (as a group) in 1998, the three companies sought to combine administrative, inventory, development and distribution roles into one central location to reduce operating costs and expenses.

Operating under the ACT Group umbrella, each company can specialize in its individual field while utilizing the resources of the other members and partners. Often contracts and applications require the disciplines of all three companies and specialties to offer a complete and viable solution.

This operating practice not only benefits the group but also offers the customer a cohesive and integral supplier for the complete contract where the different applications work seamlessly with each other. Applied Conveyor Technology Inc. is the 'big brother' of the group and provides the lynchpin around which The ACT Group operates. Formed in 1991, Applied Conveyor Technology supplies systems and components for the bulk handling industry. These include items as diverse as magnets and motor drives; level indicators and conveyor belting; pulleys and screw conveyors. Applied Conveyor Technology

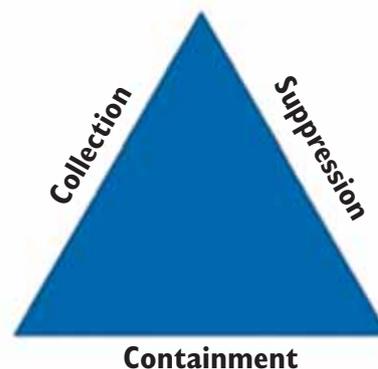
also provides the fabrication and construction mechanics for the rest of the group.

ACT offers a holistic approach to dust control by approaching each project with first determine what mechanical measures should be taken, containment. From those results, it is determined which dust control method would best suit the application, collection/extraction or suppression with water/chemical.

ACT DUST CONTROL DIVISION has two arms; one is Air Pollution Control (APC) Inc., specializing in dust collection/extraction and similar systems. Over 25 years of design and installation experience augment the company's wide services. It specializes in designing systems around clients' needs and requirements rather than limiting itself to stock brands. APC Inc.'s experience includes dust collection includes: pre-filter systems (cyclones); collection systems (both fabric and filter); vacuum systems; drum filters; and all types of service options for dust collection systems.

Dustco Inc. offers expertise in dust suppression using water and chemicals in all forms. It designs and manufactures equipment that produces droplets as small as 2 microns (a tenth of the diameter of a human hair) to spray systems that dampen the product as it moves through the process. It has added the use of chemicals to its repertoire, to allow a wider range of

Dust management is a combination of all three



treatments for differing applications. Dustco Inc. can supply a complete answer to all dust suppression needs and works closely with APC DIVISION to combine talents where applicable. Dustco Inc. also provides environmental control systems for a wide range of industries. High-pressure fog systems with micron-sized droplets have the ability to cool and humidify environments to offer a perfect storage, growing or living environment. Fog has the ability to cool the surrounding air by as much as 22°F in certain conditions; this effect can be used to cool employees, equipment and processes in a wide variety of applications.

The object of The ACT Group is to supply the customer with the right product at the best available price and to offer alongside an unparalleled pre- and after-sales service from its locations throughout California. It strives to adapt its services and products to fit in the clients schedule and work processes. Clients' needs, work schedules and practices always come first.

The group operates in not only Southern California but ships to all parts of the USA. Overseas clients receive material, support, and information just as easily as the home states; specific technical considerations are always adhered to and followed. The group's staff have years of exporting experience behind them and can adapt to differing countries and hemispheres as easily as different states in the USA.

Applied Conveyor Technology Inc. supplies a wide range of accessories for the bulk conveyor markets. These include:

- ❖ conveyor belt cleaners (primary, secondary, and speciality cleaners);
- ❖ flow aids (flash air cannon, vibrators-electric/pneumatic/hydraulic);

Flash air cannon.



Isolation valve.



- ❖ vibration systems (Vib-Slide);
- ❖ transfer points (spillage saver kits; no contact skirting, no leak feed chutes)
- ❖ safety and other accessories;
- ❖ pulleys, idler, magnets, metal detection;
- ❖ screw conveyors, bucket elevators, drag chain conveyors, feeder;
- ❖ spectrum conveyor belting; and
- ❖ conveyor belt fasteners.

QUICK OVERVIEW OF THE ACT CONTAINMENT TIPS CONTAINMENT TIPS TO IMPROVE DUST CONTROL OF CONVEYORS

Dust control is critical in increasing production as well as reducing maintenance costs. Its importance ranges from improved productivity, due to less unscheduled downtime, to increased performance of equipment, reducing



Belting.

maintenance costs. More importantly is the long-term effect that fugitive dust and spillage has on the human element. Studies reflect significant savings in medical costs as well as worker's compensation costs when effective dust control measures are implemented.

When considering dust control methods, whether it is dust collection (use of air) or dust suppression (the use of water or chemicals), containment is the foundation to success of most applications. Without proper containment, neither dust collection nor dust suppression systems will be effective. However, it is important to note that containment is not as critical with the use of foams or chemical surfactants, though the trade off is increased future operating costs. Therefore, containment issues must be addressed when discussing dust control.

Containment of transfer points and head chutes of conveyors are the focus of this pamphlet. The following applied principals have proven success to all transfer points:

1. Proper belt support to prevent belt sag is accomplished with the use of:

- ❖ Troughed cradles, impact cradles and sealing cradles;
- ❖ No-leak sealing systems;
- ❖ Installation of said cradles with idlers (steel cans as specified by CEMA) at each end to minimize belt drag and reduce horsepower requirements. Standard impact idlers are suggested with minimum CEMA C specifications.

CEMA D and E preferred;

- ❖ As an alternative the use of idlers either standard or impact at 8-12" centres, although it may not eliminate all sag but they can be relatively effective. When using idlers as such use removable idlers to minimize maintenance when change out of idlers are required; and
- ❖ Belt supports that cover actual impact/load areas as well as a distance equal to three times the belt width from impact area to ensure proper sealing.

2. Proper chute design:

- ❖ Determine length, usually 4-5 times belt width, also design such that the side chutes are easily replaced. One method is to flange side chutes just above the area required for skirting;
- ❖ Chute height minimum of 18" to help reduce velocities (if room permits higher is usually better), the use of dust curtains can assist with air velocity reductions (if room permits). The curtains can be made of various materials such as nylon strips or old belting slit at half-inch increments. The purpose is to allow material to accumulate and then drop to the belt. The larger the slits the more likely build-up will occur due to less movement, where as narrower slits will create its own vibration (movement) to release the attached particulate back onto the belt. In addition, the use of dust curtains, as stated, reduces the velocity of the air, thus allows dust collector or dust suppression system to be more effective as well as minimizing the particulate size for the collector or suppression to contend with. The collector can be a centralized unit or a self-contained single pick-up point unit;
- ❖ Chute width to allow proper skirting system, usually 3-4" on each side. There are number of variations of skirting available, the two-piece Apron Seal™ is ACT's recommended style;
- ❖ Install tailgate 24-48" long, 18-24" in height to help prevent rear spillage and dusting, install with access door at top of unit to assist with clean-up for unexpected occurrences, also install deflection plate to prevent airborne product to reach back of tailgate. OR the revolutionary Omega Tail Seal which can be adapted to most tail sections;
- ❖ Minimize impact by use of deflector plates, rock boxes, etc. Reduce turbulence and thus minimize spillage and dusting by designing chutes that slow material speed down, place the material flow in the same direction as

the belt;

- ❖ Keep chutes in-line for proper loading, if not possible the use of deflectors, liners, baffles, shapers, screens, grizzly bars, horseshoe plates and training gates can assist with ensuring balanced loading pattern;
- ❖ Use of wear liners to help prevent product from spilling and assist with material containment. Install liner to start as close as 3/16" above belt (at back of chute beginning of wear plate) and increase to as much as 3/4-1" above belt (at exit point). This is to prevent material from being lodged between belt and wear-liner.

3. Proper skirting:

- ❖ There is a variety of sealing systems available such as rubber, urethane and UHMW, all have advantages and disadvantages. It is important to evaluate based on customer's specific application.
- ❖ Dual seal products are also recommended and are available in either rubber or urethane;



Conveyor skirting.

- ❖ Use clamps, which are easy to install and to replace. Match clamp length with side chute length. Be cautious as to the durability for the specified application. Size of clamps should take tonnage and belt speed into consideration.

4. Proper head chute/tail pulley design:

- ❖ Design should be such as to allow for multiple belt cleaners, this pertains to

Multipurpose cleaner.



Multipurpose cleaner.



Secondary cleaner.



both installation and required future maintenance. If room does not allow for dual system, then place single belt cleaner such that it removes a majority of the carryback within the head chute, the secondary should be mounted in such a manner as the debris removed drops to an area accessible for easy clean up outside the head chute area. Also install a push down roller above contact point of cleaner to belt to promote maximum contact between belt and blade.

- ❖ It is important to remember the following:
 - primary cleaner are those placed from the trajectory of material to just before the 6:00 position
 - secondary are from 6:00 position to end of chute
 - tertiary cleaners beyond the chute.
- ❖ Design of chute back plate should be a minimum of 9" behind point of contact of secondary cleaner to allow for maximum flowability of product removed from top cover belt.
- ❖ Use of wing style tail pulley with straps limit vibration, however drum pulley is preferred. Vortex pulleys are an affordable combination of the two concepts.
- ❖ New-style trackers should be considered if belt misalignment is present. Though the tried-and-true

Guidlers are effective and have great value.

- ❖ Installation of V-Plow or Diagonal Plow to protect tail pulley from any unexpected debris which may have fallen onto the underside of belt and could damage said tail pulley.
- ❖ When necessary consider using liner to increase wear life as well as flow.
- ❖ Chute angle should be greater the angle of repose of said material
- ❖ Though not specifically related to sealing of transfer point, it is important to make sure the transition from the tail pulley to the transfer chute is set not to cause stress to belting. One rule is to allow transition to be two times the belt width.
- ❖ Design with access cover which is easily sealed.
- ❖ Seal all open holes, especially at points where cleaner's mainframe exit chutes. One easy and economical method is to cut rubber pieces to seal around the mainframe and attach with silicon. This procedure allows for easy removal and replacement when maintenance is required.

With respect to containment, The ACT Group is not limited to the above referenced recommendations. ACT experienced sales and engineering design team are available to offer a number of customized recommendations not covered in this pamphlet. The above is a guideline to follow and modify to your specific needs. By following the above suggestions, the use

of dust collection and/or dust suppression will be greatly enhanced. The result will be improved performance of dust control systems as well as improved housekeeping.

Each application must be reviewed and the equipment best suited should be installed prior to determining/installing/modifying the dust control system. With properly sealed transfer point and head chutes the cost of installing and operating the dust control system are significantly lowered, both from initial cost and operating cost.

As mentioned above, containment with the use of foams and/or surfactants is not as critical as with dust collection and dust suppression. Review and implementing the containment guideline will decrease the operating cost when utilizing a foam/surfactant system. The key to use of chemicals in many instances is how they are applied to one source and how they control dusting throughout the process. The ACT Group is proud to supply chemicals that are environmentally safe. It addresses the process portioning, stockpiles and roadways. The final result is always a cleaner, safer and cost-effective facility.

The ACT Group aims to make its customers' operations safer, cleaner and more productive, through superior customer service, high quality, and a commitment to excellence.



For Solutions, Contact us:

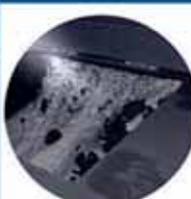
T: (888) 480-0680 F: (909) 350-4982 E: sales@groupactinc.com

For more information, please visit our website: WWW.GROUPACT.COM



Conveyor Components

- Belting
- Belt Cleaners
- Skirting & Sealing
- Alignment & Support



Dust Suppression

- Complete Systems
- Chemical/ Surfactant
- Nozzles & Filters
- Pumps & Motors



Wear Parts

- Impact Bars
- Wear Liners
- Crown Bars
- Screen Media