涂布造纸车间进行环保系统清理

AmiClean通过使用安全与环保型化学品去除槽罐、管道以及涂布头。其中主要包括过氧化氢以及其他助剂，用于提高系统清理的速度与效果

Eco-acceptable cleaning in the coating plant

AmiClean removes coating deposits from tanks, pipes and coating heads using a safe and eco-friendly chemistry. This involves peroxide as the workhorse and additional agents to promote faster and better cleaning

将包衣粉涂在纸张的表面使其表面变得平滑平整来适用于印刷。在进行涂布处理之前，原纸通常通过施胶控制其表面对特定涂料混合的接受性能。涂料本身通常为一层，主要为细小狂矿物颜料，混有粘合剂以及其他组分，使其附着于纸张表面，赋予其适合的整饰性与耐摩擦性。

涂料配制室和涂布机不仅需要较好的涂料防腐剂以及分散剂，还需要对其进行定期清理。主要是由于涂料沉积物以及其他有机物与无机物杂质形成聚集，造成系统堵塞，搅拌性能下降，同时形成盲区。

剩余涂料与其他沉积物在表面聚集成形。随着这些沉积物不断增多，它们将逐步从表面转移至纸张，造成纸张污点与压纹，同时影响纸机运行性能。有效的涂料防腐剂以及分散剂可延缓这一过程，但并不能防止其出现。最终系统运行性能将受到影响，需进行彻底的系统清理。

一套高效的清理方案可去除制备车间与涂布机的剩余涂料沉积物以及其他聚集物，其优点如下所示：

- 降低由于纸洞、污点和压纹导致的运行性能问题
- 降低由于纸张问题导致的涂布机开机滞后问题
- 通过使用协调安全方案以及正确的喂料设备，降低化学品处理的风险
- 降低清理解决方案向工厂污水系统排放所造成的环保问题

传统的涂料沉积物清理系统采用单一或结合的碱性、酸性、螯合或溶剂化清洁剂。同时采用氯等卤素氧化剂。许多工厂表示较为关注对这类化学品的使用，因为其涂料原料具有侵蚀性，以及与其处理和排放相关的安全问题。众所周知，一些同类清洁化学品暴露在水生环境中时可造成环境污染。通常，在排放至废水处理车间之前，需对此类化学品进行中和处理。

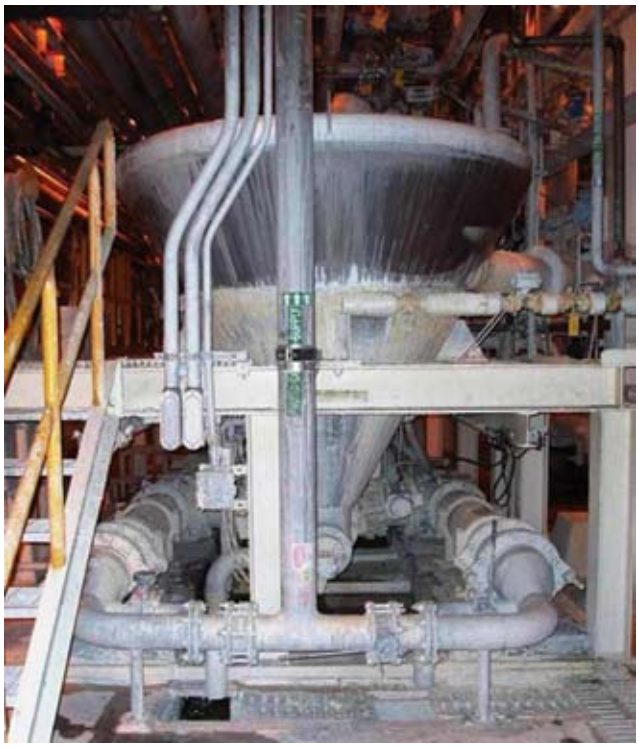
Coatings are applied to paper surfaces to provide a smooth, even surface for printing. Prior to the coating operation, the base sheet is usually sized to control the receptivity of the surface to a particular coating mix. The coating itself is normally a layer made up, primarily, of fine mineral pigment that is mixed with adhesives and other components to hold it onto the paper surface and provide a suitable finish and rub-resistance.

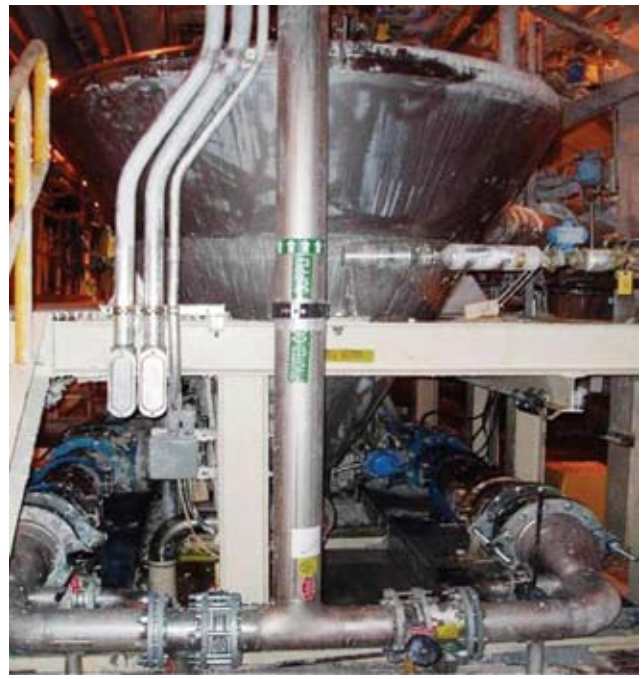
Despite the presence of good coating preservatives and dispersants, there is a need for periodic cleaning of both the coating kitchen and the coating machine. This is due to the accumulation of coating deposits and other organic and inorganic debris as a result of system loads, low agitation and dead spots in the system.

Layers of old coating and other deposits form and accumulate on surfaces. As these deposits increase in mass, they will begin to break loose from the surfaces and cause dirt spots and streaks in the paper web, as well as runnability problems on the PM. While effective coating dispersants and preservative programmes can delay this process, they will not prevent it. System runnability will eventually suffer and a thorough cleaning process will be required.

An effective boilout programme keeps the preparation plant and coater free from old coating deposits and other contaminants and yields the following benefits:

- a reduction in the runnability problems that arise from holes, dirt spots and streaks





外表面清洁处理前后对比
An exterior surface before and after cleaning

工厂需要获得创新性方法以进行有效的清洁处理，同时需要进行安全的处理与排放，以及满足环保规定的要求。

新途径

AmiClean用于去除制备槽罐、管道以及涂布头中，以及涂料制备系统其他表面的常见涂料沉积物。该产品含有稳定的过氧化氢，对于内部清理和外表面清洁均具有强效作用。由于为无氯氧化剂，可对蛋白质以及涂料粘合剂起效，包括聚乙烯醇、淀粉、苯乙烯一丁烯胶乳与酪蛋白。也可用于清理颜料、粘合剂以及助剂储存槽罐。在特殊润湿剂和渗透剂的辅助作用下可提高清理的速度和效果，可安全用于各类不锈钢表面、泵体部件以及合成橡胶。

除超强的清洁效果外，该产品还具有出色的环保优势，不会造成排放问题。其挥发性有机化合物的含量不到1%，且符合美国食品药品管理局Title 21CFR Paragraph 176的规定。

AmiClean技术采用过氧化氢化学品作为去垢的主要成分，可作为卤素化学品的“替代氧化剂”。其氧化作用可破坏有机物的结合，有助于从该工艺形成的基质与氧中释放土壤，迫使土壤沉积在内压力的作用下分离。可分类为赛尔兹作用。加入特殊湿润剂与渗透剂可提高活性，达到更好的清洁效果。

应用技术

任何清洁方案、化学品计量以及注入都应取决于问题的严重性以及应用问题。为了达到最好的效果，该产品在制备时，通常将5-10%浓度的AmiClean注入热水(60-65摄氏度)中，然后加入约1-5%的

- reduced delays during coater start-up due to sheet defects
- reduced chemical handling risk through a coordinated safety plan and correct feed equipment
- a reduction in the environmental concerns relating to the disposal of the cleaning solution into the mill's effluent system.

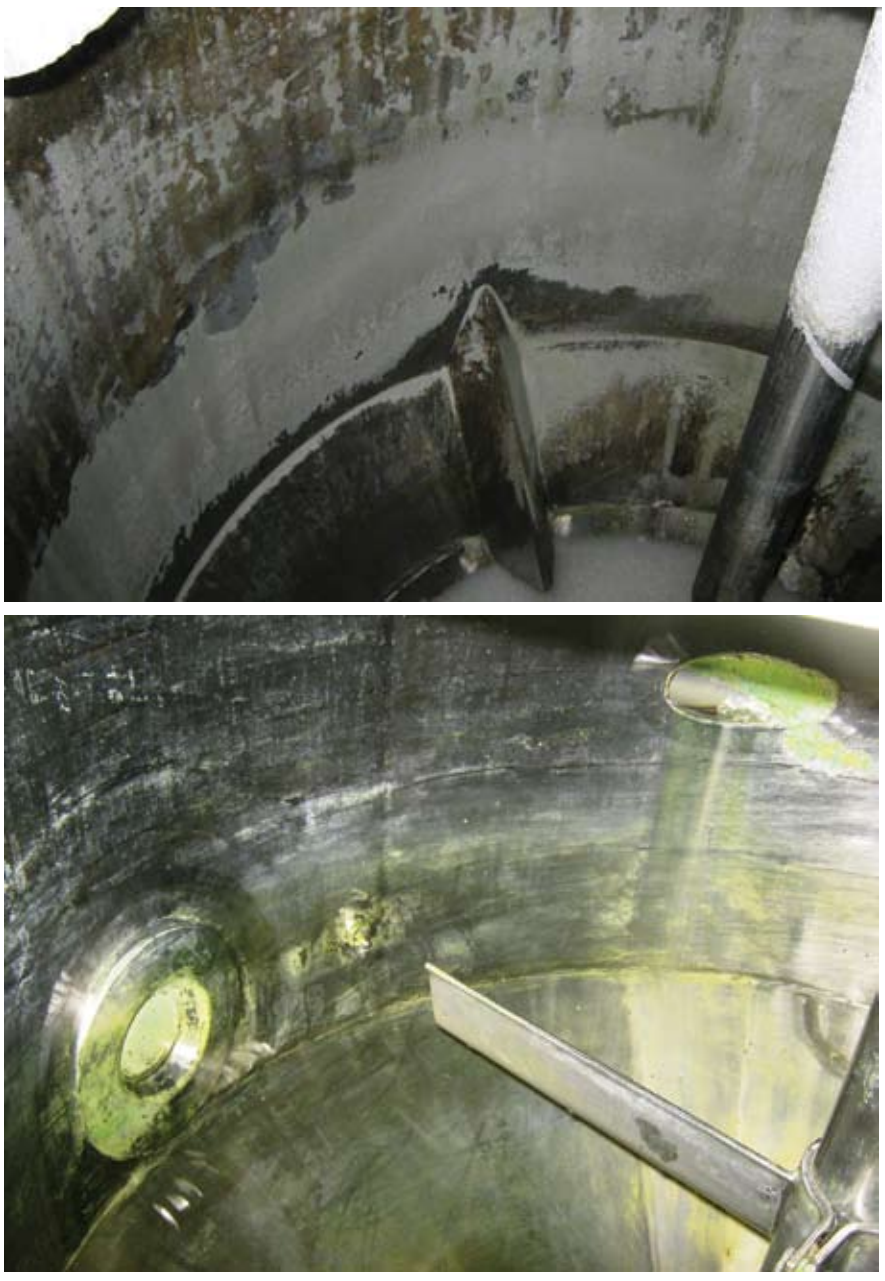
Conventional cleaning systems for coating-based deposits use single or combined treatments of caustic, acid, chelant or solventised cleaners. A halogen-type oxidiser, such as chlorine, is also used. Many mills have expressed concerns about the use of these chemicals due to their aggressiveness to coating materials and the safety issues associated with handling and disposal. Some common cleaning chemicals are known to cause environmental hazards when exposed to aquatic environments. Very often, these chemicals require a neutralisation procedure before being discharged into the wastewater treatment plant.

New, innovative approaches are required to provide mills with effective cleaning procedures, which also provide safe handling and disposal. Conformance to environmental regulations is also a requirement.

A new approach

AmiClean is formulated to remove common coating deposits from preparation tanks, pipes and coating heads, and

采用过氧化氢清洁去除涂料沉积物，可能会落入涂布系统中，造成纸张污点和压纹，以及纸机运行性能问题



from other surfaces in the coating preparation system. The product contains a stabilised peroxide source, with superior cleaning ability for both internal boilouts and exterior surface cleaning. With its non-chlorinated oxidative power, it is effective on protein and coating binders including PVA, starch, SBR-latex and casein. It can also be used to clean the pigment, binder and additive storage tanks. The addition of specialised wetting agents and penetrants promote faster and better cleaning action and it is safe to use on all stainless steel surfaces, pump components, and elastomers

In addition to its superior cleaning performance, this product has an excellent environmental profile that presents no discharge problems. It contains less than 1 per cent Volatile Organic Compound and is FDA-compliant under Title 21CFR Paragraph 176.

AmiClean technology is based on the use of peroxide chemistry as a workhorse for detergency. It serves as an "Alternate Oxidant" versus the use of halogens. Its oxidative power breaks the bonds of organic materials to help release soils from their substrates and the oxygen generated by this process forces soil deposits apart as a result of internal pressure. This is categorised as the seltzer action. The addition

混合槽罐清洁处理前后对比
A mixing tank before and after cleaning

外表面清洁处理前后对比
An exterior surface before and after cleaning

传统清洁化学品对涂布系统原料具有侵蚀性，同时会造成安全与环境污染问题。通常，在排放至废水处理车间之前，需对此类化学品进行中和处理

液态苛性钠，只需足够将清洁溶液的pH值提高至少10.0。加入点取决于清洁方案。通常来说，清洁溶液在涂料混合/分散槽罐中进行制备，随后送至储存槽罐与计量槽罐，最终送至涂布机。但是，在特定区域也可应用清洁溶剂。

AmiClean也可应用于涂料配制室外表面以及涂布机。采用特殊设计的发泡枪可形成足量的泡沫，并将清洁剂均匀喷射应用于目标表面上。清洁溶液中化学品的用量取决于沉积的严重程度。

参考范例

在一家无碳复写纸厂中，在涂料制备系统蒸煮清理时采用AmiClean。

控制参数如下所示：

- AmiClean剂量为8%w/v
- 清洁溶液的pH值调为11-12（含碱）

of specialised wetting agents and penetrants promote faster activity and better cleaning action.

Application technology

As with any cleaning programme, dosage and feeding depend on the severity of the problem and on the application in question. For best results, this product is usually prepared by pouring a 5-10 per cent concentration of AmiClean into hot water (60°-65°C), then adding approximately 1-5 per cent liquid caustic soda, just enough to increase the PH of cleaning solution to at least 10.0. The addition point depends on the cleaning strategy. Very often, the cleaning solution is prepared in the coating mixing/dispersing tank, then transferred to the storage tank, service tanks and finally to the coating machine. However, it is also possible to apply the cleaning solution to a specific area.

AmiClean can also be used for the cleaning of exterior surfaces in the coating kitchen and on the coating machine. A specially designed foam gun generates sufficient foam and spray to apply the cleaning solution evenly to the targeted surfaces. The amount of chemical used in the cleaning solution depends on the severity of the deposition.

Case histories

In a mill producing NCR paper, AmiClean was used during the boilout of the coating preparation system.

The control parameters were as follows:

- the dosage of AmiClean was 8 per cent w/v
- the pH of the cleaning solution was adjusted to 11-12 (with caustic)
- boilout time was in the range of 2-3 hours
- the temperature of the cleaning solution was 60°-65°C

- 清洁时间为2-3小时
- 清洁溶液的温度为60-65摄氏度

AmiClean大幅提升了清洁性，随着沉积物的去除，混合槽罐、储存槽罐和计量槽罐的金属表面再次变得清晰可见。同时由于降低了采用金属刮板进行机械清理的时间，加快纸机开机，从可提高运行时间。

此外，在将清洁溶液排放至废水处理车间方面不存在任何问题；不会因排放清洁溶液而造成BOD/COD大幅提高。

第二个案例是一家涂布文化纸厂进行的涂布机清理。设计对涂布头系统进行清洁。

控制参数如下所示：

- AmiClean剂量为10%w/v
- 清洁溶液的pH值调为11-12(含碱)
- 清洁时间为2-3小时
- 清洁溶液的温度为60-65摄氏度

管道内部清洁处理前后对比
Inside a pipe before and after cleaning

AmiClean achieved a significant improvement in cleanliness and, with the removal of deposits, the bare metal was once again visible in the mixing, storage and service tanks. There were also gains in uptime, since the reduced time for mechanical cleaning – by metal scrapper – leads to faster machine start-up.

Moreover, there were no difficulties in disposing the cleaning solution to the wastewater treatment plant; nor was there any significant increase in BOD/COD during the disposal of the cleaning solution.

The second case study comes from a coating machine boilout at a coated fine paper mill. The boilout was designed to clean the coating head system.

The control parameters were as follows:

- the dosage of AmiClean was 10 per cent w/v
- the pH of cleaning solution was adjusted to 11-12 (with caustic)
- boilout time was in the range of 2-3 hours
- the temperature of the cleaning solution was 60°-65°C.

AmiClean achieved a significant improvement in cleanliness and, with the removal of deposits, the bare metal of the coater head was once again visible. The effectiveness of the new cleaning system reduced the time needed for mechanical cleaning by metal scrapper and this led to faster machine start-up. During the start-up period, the incidence of streaks, scratches and dirt spots declined. There were no compatibility issues with rolls and seals

In a coated board mill producing Duplex and Ivory board, AmiClean was used to clean the exterior surfaces of the coating preparation plant, ie the exterior surfaces of storage tanks and pipes.

AmiClean解决方案采用特殊设计的发泡枪，均匀作作用于目标表面上。通过溶液的氧化作用破坏有机物间的结合，同时该工艺产生的氧可通过赛尔兹作用迫使沉积物分离

AmiClean大幅提升了清洁性，随着沉积物的去除，涂布头的金属表面再次变得清晰可见。新型清理系统的高效作用同时降低了采用金属刮板进行机械清理的时间，从而加快了纸机开机。开机时的压纹、刮痕与污点等问题得到改善。辊子和密封都不存在兼容问题。

一家生产白纸板与白卡纸的涂布纸板厂使用AmiClean清洁涂料制备车间外表面，即储存槽罐和管道的外表面。

控制参数如下所示：

- AmiClean剂量为40% w/v
- 清洁溶液的pH值调为11-12（含碱）
- 清洁溶液的温度为60-65摄氏度

AmiClean大幅提升了清洁性，大部分处理后表面均再次变得清晰可见。新型清理系统的高效作用同时降低了采用金属刮板进行机械清理的时间，从而加快了纸机开机。金属与塑料材质均不存在兼容问题。

与传统清洁方法相比，AmiClean技术具有多种优势，其中包括超强清洁效果、安全处理与应用，以及符合环保规定要求。

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The control parameters were as follows:

- the dosage of AmiClean was 40 per cent w/v
- the pH of the cleaning solution was adjusted to 11-12 (with caustic)
- the temperature of the cleaning solution was 60°C.

The AmiClean programme brought a significant improvement in cleanliness and the bare metal was again visible on most treated surfaces. The effectiveness of the new cleaning system reduced the time needed for mechanical cleaning by a metal scrapper and this led to faster machine start-up. There were no compatibility issues with metals and plastic materials.

AmiClean technology brings several advantages when compared with conventional cleaning methods. These include superior cleaning performance, safe handling and application, together with its conformance to environmental regulations. ■

By Ezwar Roezzaman, Technical Marketing Manager, Biocides and Cleaning, Amazon Papyrus Chemicals