

ESCO NEWS

OCCASIONAL NEWS AND INFORMATION FROM ESCO ENGINEERING

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BUYING ENGINEERING #2

Why engineer it?

- To protect the safety of the plant, the employees and the public.
- To ensure compliance with laws, especially environmental.
- To optimize project costs.
- To provide a sound technical basis for the system design.
- To plan the project, and avoid repetition of previous mistakes.
- To ensure timely completion of the project.
- To anticipate, and prevent, start-up and operating problems.
- To create a permanent record of the changes or additions.

Ultimately, all these reasons translate into money - actual or potential expense. So, why engineer it? Because it's cheaper to do so!

Next time: Sources of engineering.

NO MORE PICKLING?

Every five years or so, an article appears in the technical press (usually in Wire Journal) proclaiming the end of acid pickling for surface cleaning. Instead of pickling, an alternative mechanical or chemical cleaning process is proposed, yet acid pickling continues to be favored, and new pickle lines continue to be built. Where's the fallacy?

Let me say, first of all, that mechanical descaling has an important place in metal preparation, and there are many applications where it is to be preferred over pickling. In fact, a good economic case can be made for partial mechanical descaling prior to pickling (which is commonly done in stainless pickling).

The common wisdom of the alternative descaling articles is that pickling is 'bad' because it requires 'acid' or 'chemicals', which are, apparently, automatically problems. Yet, every day, we handle materials that are far more dangerous than pickling acids - gasoline for our cars, or drugs for our medications - but we handle them safely, and treat them with the care they require.

Another knock against pickling is that it is not 'green' - that it creates environmental problems. But so do other processes - mechanical descaling requires dust control and collection, and any wet chemical requires containment and disposal. Environmental control for pickle lines is fairly simple, and reliable, and is mature technology these days.

However, all these things are perception - which is not usually swayed by logical argument, so there must be other, more persuasive reasons why pickling survives. Two of these reasons are:

- surface quality
- flexibility

The main benefit of pickling is that it chemically removes the surface layer of oxide, right down to the last molecular layer, leaving a clean steel surface that is ideal for coating or galvanizing. No mechanical method will do this - and it is debatable whether milder chemicals than acid will, either.

A pickle line also has the flexibility to handle different forms and sizes of product, degrees of scaling and metallurgy, by adjusting the pickling time or conditions - alternative systems cannot offer this.

So, don't write off pickling yet - there are a lot of benefits to mature technology!

TANK EMISSIONS - REVISED

Our updated Excel spreadsheet for calculating vapor losses from pickling tanks into the exhaust air has been updated to include for estimation **sulfuric acid** emissions - this calculation is less rigorous than the HCl method, but will give a reasonable estimate. The sulfuric calculation was revised in July 1998 to include the effect of tank freeboard, so, if you have a version before this, you should download the revised file. Thanks to Scott Brown in Alabama for initiating this change.

The spreadsheet is free; you can download it from our website, or call us for a copy on disk. We welcome any comments or questions about the spreadsheet, and especially suggestions for features that would make the sheet more useful.

THE VIEW FROM THE FIELD

Field Technician Fred Hasler probes the waste:

Most of the pickling systems in operation today have a waste water treatment system connected with them. We all know, what really makes a such a system tick,--- no, not the settler or the filter, both would be useless, if it was not for the ----Yes, you guessed it,--- **THE pH PROBES**

Without them, waste water treatment is nearly impossible. Yet they are often the most neglected piece of equipment in the system. Are they a necessary evil or can we get with it and accept them for what they are: A piece of equipment that needs a lot of TLC. As such, we may as well accept the fact, that they must be looked after on a daily basis.

pH probes are delicate instruments stuck into a more or less filthy environment and thus prone to getting coated, blinded and crusted. As the probe becomes that way, it sends a gradually worsening wrong signal to the instrument controlling the pH of your waste water and soon you end up with a totally wrong pH in your system, even though the instrument shows it to be OK.

To stop this nightmare, make it a daily routine to:

1. Clean the probes

(Usually a good wipe with a clean wet paper towel followed by a water flush will do it)

2. Standardize them

(Usually a quick check of your waste water with a pH meter or pH paper against the reading on your instrument will tell you if the probe needs standardizing)

You will be forever grateful for these comments. For more information check out our publication: "The Whys and Hows of waste water treatment for picklers."

SCRUBBER CHECK-OUT

Under the new NESHAP rules, which are expected to be made final before the end of 1998, many pickle line scrubbers will need to be upgraded in efficiency, and all pickle line HCl scrubbers will have to be tested within 24 months, and annually thereafter, unless a continuous emission monitoring system (CEMS) is installed.

Tests are expensive, and failing a test could be even more expensive, so it's a good idea to check the scrubber, for design and physical

condition, *before* running any tests. This maximizes the probability of compliance with the test limits.

Esco can provide design checking, upgrade recommendations and physical inspection services. Call us for a quote.

If you are considering improvements or changes to your scrubbers, you should have a copy of our publications '**The Whys and Hows of pickle line fume scrubbers**'. This is a practical guide, which includes: types of scrubber; how they work; how to specify scrubbers; and troubleshooting tips. Request your copy by phone, fax or e-mail - it's free!

TECHNICAL PAPERS!

Neil Stone, our chief engineer, presented a paper on the impact the new NESHAP for HCl will have on rod and wire picklers at the **Wire Association Convention** in Cleveland, Ohio, in June. The presentation included a discussion of how to specify and maintain fume scrubbers and fume exhaust systems to meet the new reporting requirements.

Copies of the paper are available on request,

New! '**The Whys and Hows of waste water treatment for picklers**' is now available. A practical guide, which includes: chemistry of waste treatment; process descriptions; how to minimize costs and troubleshooting tips. Request your copy by phone, fax or e-mail - it's free!

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Our **home page** URL is:

<http://www.mnsi.net/~pas/esco.htm>

GOOD FOR A LAUGH

Someone on the Internet has suggested that computer error messages might be less irritating if they were expressed as Haiku. Here are a couple of my favorites:

The Web site you seek
cannot be located but
endless others exist.

Yesterday it worked
Today it is not working
Windows is like that.