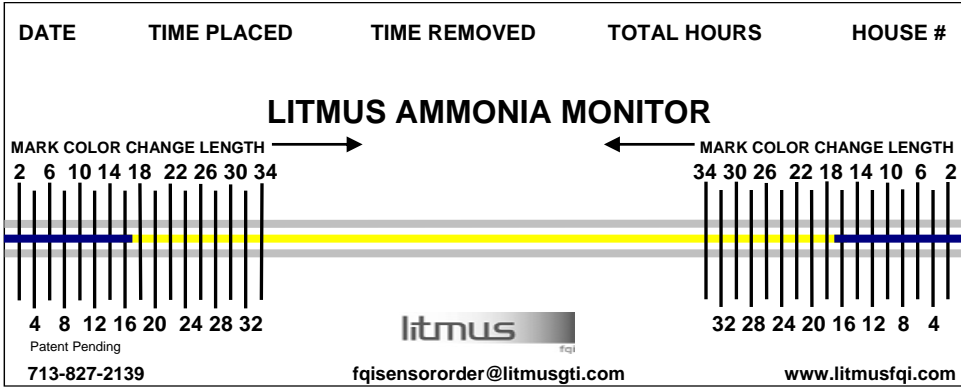


LITMUS FQI AMMONIA MONITORS

New, Low Cost, Easy to Use Solutions for Equine Ammonia Level Maintenance



PPM	TOTAL HOURS																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	4	4	4	5	5	5	5	6	6	7	7	7	8	8	9	9	9	10	10	11	11	12	12	13
20	6	6	6	7	7	7	8	8	9	9	10	11	11	12	12	13	13	14	14	15	16	16	17	17
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100	13	14	15	16	17	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35

Scientific Team

National Center for Toxicological Research (NCTR)



Litmus FQI Colorimetric Sensor Technology was developed at the U.S. Food and Drug Administration's National Center for Toxicological Research.

160 Ph.D. Scientists





\$1.5B USD Facility

Over 50 Research Labs

**An inexpensive, repeatable and
reliable tool to measure
average ammonia levels.**

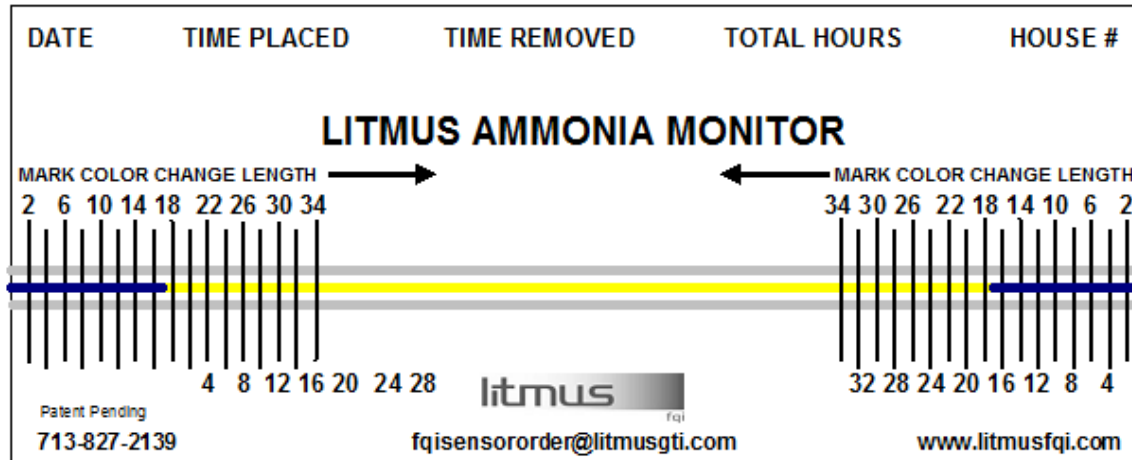
- **“Ammonia is the main concern in horse stables. An inhalable, toxic gas, it can inhibit movement of the cilia in the horse's respiratory passages, affecting their ability to remove dust. It also irritates the eyes and mucous membranes of both horses and humans. When stalls are not mucked frequently or thoroughly, ammonia can build up very quickly in an airtight barn”.**
- **“Problems crop up from long-term, low-level ammonia exposure, according to the International Veterinary Information Service. Researchers M.S. Davis and W.M. Foster released a paper indicating that as little as 10 ppm for 5 to 7 weeks can cause dysfunction of the horse's mucus membranes, which decreases immune response and makes the horse susceptible to other pathogens”.**
- **"It's been suggested that a level of just 10 ppm causes problems in other animals, such as calves," Harper says. "It appears that levels in horse stalls are probably so much that we might be challenging or damaging foals.”**
- **"One problem is that many Producers have difficulty in smelling the difference between 20 and 40 ppm so they might have harmful levels of ammonia in their house and not even be aware of it.”**

Present Ammonia Measurement Methods

	<u>Sensor Name</u>	<u>Cost</u>	<u>Accuracy</u>	<u>Usability</u>
	Hydrion Text Paper	Inexpensive	Imprecise	Interpretation Required
	Gas Detection Tubes	Expensive	Variable	Fairly Easy
	<ul style="list-style-type: none"> ■ Pump \$165-\$300 ■ 10 Tubes \$25-\$35 			
	Passive Dosimeter Tubes	Expensive	Variable	Interpretation Required
	<ul style="list-style-type: none"> ■ 10 Tubes \$60.00 ■ \$6.00 Each 			
	Electronic Ammonia Meter	Expensive	Variable	Frequent Recalibrations
	<ul style="list-style-type: none"> ■ \$1,000-\$1,500 ■ Re-calibration required 			

THE LITMUS AMMONIA MONITOR SOLUTION

Front



Back

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THE LITMUS AMMONIA MONITOR SOLUTION

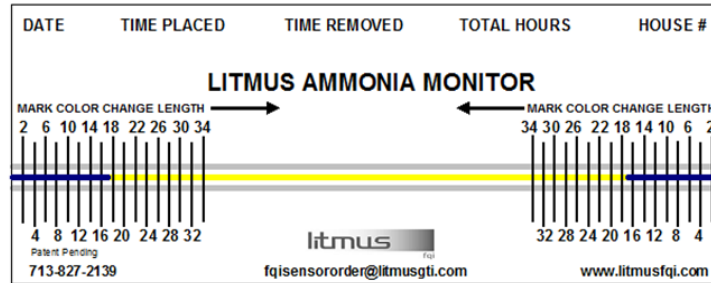
**AN ACCURATE, EASY TO USE AND INEXPENSIVE
LITMUS AMMONIA MONITOR
THAT WILL INDICATE AVERAGE AMMONIA
LEVELS FROM 0 – 100 PPM
IN CONFINED ANIMAL FEEDING OPERATIONS
ANYTIME DURING A 24 HOUR PERIOD**

HOW THE LITMUS AMMONIA MONITOR WORKS

Each LITMUS AMMONIA MONITOR (LAM) has a colorimetric indicator which changes color from yellow to blue at specific rates depending on ammonia levels. Numbers on the LAM Indicator show the color change length.

EXAMPLE: COLOR CHANGE LENGTH = 17

Front



Single or multiple Ammonia Indicators are placed in various locations in a Poultry House and used to average from 1 to 24 hours.

A chart is provided to give the average ammonia level by comparing the TOTAL HOURS USED with the number indicating the Color Change length.

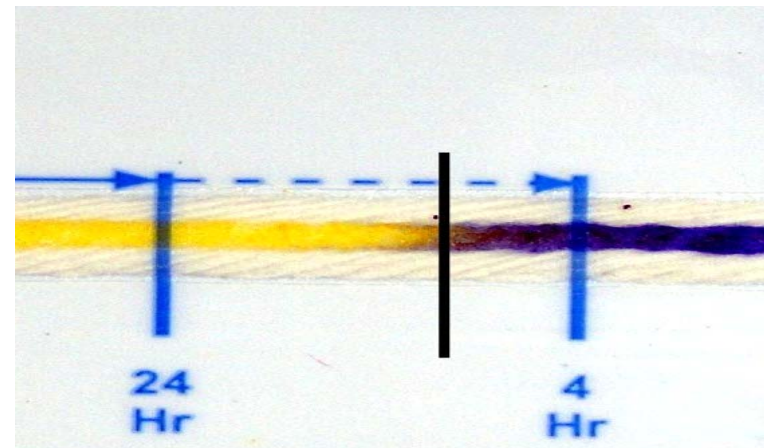
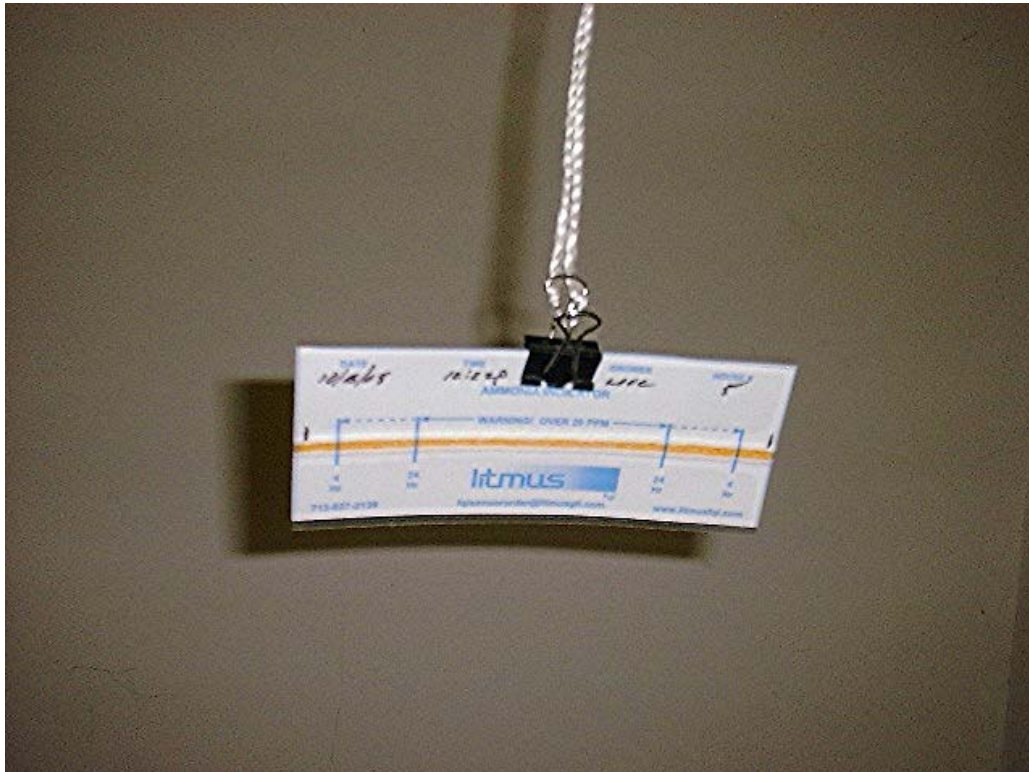
EXAMPLE: TOTAL HOURS USED = 10, COLOR CHANGE LENGTH = 17, AVERAGE PPM = 50 PPM

Back

	TOTAL HOURS																							
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Note: If adjustments are made to control ammonia, the Litmus Ammonia Indicator should be replaced.

How to Hang and Mark LAM



LAM may be attached to horse halters

FOR THE EQUINE PRODUCER

- Lower Ammonia Levels = Horses less than susceptible to respiratory infections.
- Lower Ammonia Levels = Horses with a better immune response and less susceptibility to pathogens.
- Lower Ammonia Levels = Better Atmosphere for foals and sick adults horses
- Lower Ammonia Levels = A healthier Farmer
- Lower Ammonia Levels = Less air pollution, fewer odors.

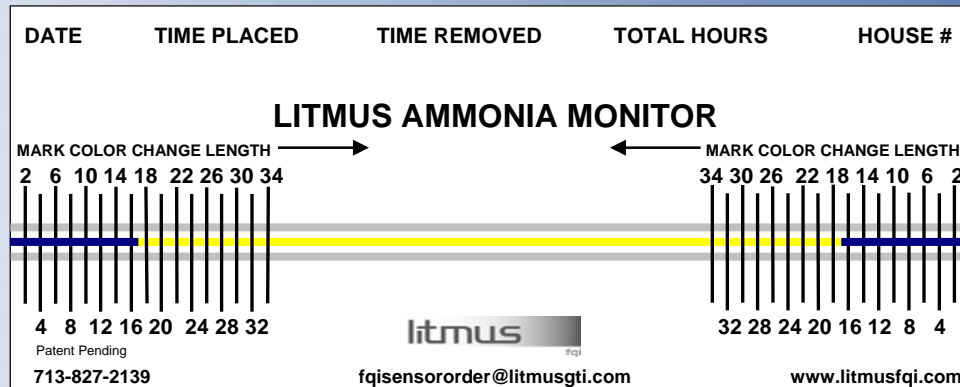
FOR THE EQUINE WORKER

- The Ammonia Monitor identifies ammonia levels from 1 – 100 ppm. Lower ammonia levels = Healthier Horses!
- The Ammonia Monitor may be used safely by untrained grower personnel.
- The Ammonia Monitor design allows it to be “customized” to include Your Brand Name and other information.
- The Ammonia Monitor is inexpensive enough to give (or sell) to your customers.
- **Your LITMUS Ammonia Monitor PLUS your ammonia control methods = Your Satisfied Customer**

LITMUS FQI offers:

- LITMUS FQI Ammonia Monitor provides an economical solution to assist Equine growers in maintaining a preferred average ammonia level . LAM averages from 1 – 24 hours and indicates average PPM's from 1 – 100 PPM.
- One of a kind Litmus Ammonia Monitors directly and objectively assist in growing healthier and larger horses.
- A value proposition wanted and needed by all sectors of Equine Production:
 - Increased revenue.
 - Increased brand awareness
 - Increased revenue through differentiation/exclusivity.
 - Reduced ammonia emissions
 - Improved quality of life, peace of mind.

LITMUS FQI AMMONIA MONITORS



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