ROMER

Romer® Labs, Inc.

"Making the World's Food Safer"

RAS® Mill Manual

Version: RASMM01.04

30 November, 2001

Romer® Labs, Inc.

1301 Stylemaster Drive Union, MO 63084-1156

Fax: (636) 583 6553 Tel: (636) 583 8600

www.romerlabs.com sales@romerlabs.com

Toll free: (800) 769 1380

Table of Contents

Introduction

Thank you for purchasing the Romer® Labs, Inc. RAS® Mill. The RAS® Mill is a versatile and easy to use mill that will meet your sample preparation and sample grinding needs for a variety of analyses, including moisture, protein, fat, fiber, pesticide and mycotoxin testing procedures.

In the past, it was difficult and/or time consuming to grind high moisture or high oil products. These difficult products are what the RAS® Mill was designed to grind.

The RAS® Mill will grind a large assortment of products including:

Cottonseed	Walnuts	Pistachios
Peanuts	Almonds	Corn
Soybeans	Wheat	Milo
Garlic	Shallots	Large Pellets
Small Pellets	Barley	Pet Foods
Silage	Haylage	Ginger Root
Cinnamon	Soil	Pharmaceuticals
Spices	Minerals	Pecans
Many other food products		

Also, the RAS® Mill is able to subsample as it grinds. For more information on specific items that can be ground with the RAS® Mill, please contact Romer® Labs, Inc.

****All 230V mill are CE approved.**

Safety Information

Safety should always be the first concern when operating the RAS® Mill. The following guidelines have been written for your protection. Always take caution when operating any piece of equipment.

To avoid personal injury:

- Always wear a dust respirator to prevent the inhalation of toxic materials.
- Wear protective eye gear; goggles, safety glasses or other approved eyewear.
- Use the mill only with a grounded 3-prong plug or damage to the unit may occur.
- Make sure the mill is on a level surface.
- Use in a well ventilated area, such as a fume hood, etc.
- Replace fuses as outlined in the Specifications section of his manual

DO NOT:

- Operate the mill with any part removed (lid, safety switches, chutes electrical covers, etc.)
- Plug in the unit while the power switch is in the “on” position.
- Use the mill for any purpose other than which is stated in this manual.
- Disassemble or otherwise attempt to service this unit unless the power cord is disconnected.
- Attempt to remove the back cover of the control panel, as electric shock may occur. *Any attempt to open this panel will void all warranties.*
- Attempt to adjust or otherwise service control panel on the bottom of the mill. *Any attempt to open this panel will void all warranties.*

Assembly

Carefully unpack the RAS® Mill and inspect for any damage. If the mill is damaged, contact Romer® Labs, Inc. immediately.

The RAS® Mill is shipped in two pieces, the frame, including the motor and collection chute, and the grinding hopper.

DO NOT CONNECT POWER TO THE RAS® MILL UNTIL IT IS COMPLETELY ASSEMBLED!

Tools required for assembly:
- 5/8" Alan wrench (included)
- 3/8" Alan wrench
- 3/8" Open-end wrench

Place the mill on a solid, flat surface. If necessary, adjust the feet to level the mill. Attach the hopper by removing the screws from the sides of the grinder housing and placing the hopper on top of the housing with the Romer® Labs label and flat surface facing forward. Secure the screws tightly. This will prevent the screws or nuts from entering the grinder housing and possibly causing damage to the mill. The screws should be inserted through the inside of the hopper and the nuts attached on the outside of the hopper.

Next, connect the safety switch power cord to the receptacle on the hopper (Figure 1). The safety cord must be in place in order for the mill to operate. Any attempt to bypass, modify or otherwise improperly use this safety mechanism will void the warranty for the RAS® Mill. To install, simply insert the black connector into the electrical outlet on the back of the control box.

Figure 1

Finally, check the sampling/collection chute attached to the frame (Figure 2). Be sure the thumbscrews are secured tightly. To remove, loosen the thumbscrew from the left side of the grinding housing and then loosen the thumbscrew on the bottom of the grinder housing. It is not necessary to completely remove these screws; the chute will slide over the screw thread.

Figure 2

Operation and Grinding Procedure

1. Visually inspect sample for any rocks, metal objects or other foreign material, which may damage the mill.
2. Set the collection chute for approximate subsample to be obtained.
3. Set grind adjust cap for desired sample particle size (see Grinder Knob Adjustments section).
4. Set variable speed control to desired setting. Speed control may be adjusted during grinding operation to achieve a finer grind, depending on the product being ground.
5. Fill hopper with sample and close lid. For safety reasons, the mill will not operate with the lid in the up position.
6. Turn power switch to the “on” position.
7. After the sample is ground, turn power switch to the “off” position before lifting the mill lid. DO NOT use the lid to start and stop the grinder. This may cause damage to the motor speed control.
8. Clean the mill thoroughly after each use (see Cleaning and Care section).

Grinder Knob Adjustments

The grinder cap can be adjusted to give different particle sizes, however different commodities will grind to different particle sizes when using the same setting. For example, corn will grind to a larger particle size than wheat when using the same setting. To obtain a larger particle size, turn the grinder knob to the left (counter-clockwise). To obtain a smaller particle size, turn the grinder knob to the right (clockwise).

To grind high fat or high moisture products, it may be necessary to adjust the grinder cap to a coarse grind setting. Silage and haylage may require a double grinding process.

The RAS® Mill has been preset at Romer® Labs, Inc., but over time, the burr set (grinding assembly inside the grinder housing) may become worn and need adjustment. To adjust the burr set, follow the procedure listed below.

1. Turn the power switch to the “off” position.
2. Adjust the grinder knob to the farthest clockwise position.
3. Loosen the outside locking screws on the grinder knob.
4. Turn the power switch to the “on” position.
5. Slowly turn the grind adjustment screw clockwise until a faint grinding sound is heard. Then slowly turn the grind adjustment screw counter-clockwise 1/8 of a turn until the burr set no longer makes a grinding noise.
6. After setting the burr set, tighten the locking screws.
7. To achieve a larger particle size, turn the grind adjustment screw counter-clockwise in step 5 and tighten the locking screws.

Cleaning and Care

A small amount of ground sample may remain in the mill after the total sample has been ground and a subsample collected. To prevent cross-contamination, use one of the following procedures to clean the mill after each use.

1. After the sample is completely ground and while the unit is still running, cover the chute openings with an attachment of an operating vacuum cleaner at the bottom of each sub-sampling chute. Vacuum for approximately 30 seconds.

2. Run approximately 50 grams of the next sample through the grinder and discard. Grind the remaining sample.

Periodically check the burr set and inside the grinder housing to remove any built-up residue. To fully clean the burr set, turn the power switch to the “off” position and unplug the unit. Remove the grinder cap and feedworm assembly by loosening the hex-shaped mounting screws on the top and bottom of the grinder cap and removing the entire unit. Clean the burrs and feed worm with a stiff brush. Soap and water may also be used.

Specifications

Motor: 1 HP
Current: D.C.
Voltage: (AC line) 115v or 230v
Voltage: (DC line) 90-130v or 180v

Weight : approx. 139 lb

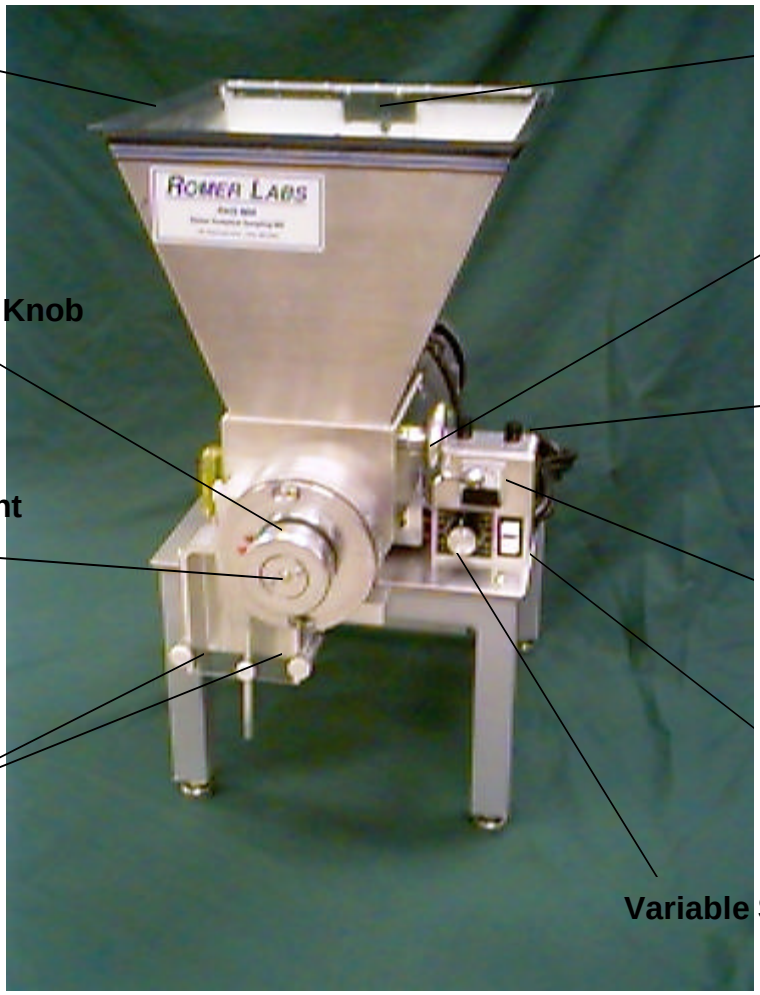
Shipping Weight: approx. 152 lb
Height: 28.5 in
Width : 14 in
Depth: 29 in

Hopper: Stainless Steel
Feedworm: Flash Chrome
Grinder Housing: Aluminum
Grinding Burrs: Cast Alloy

Fuse:
110v DC 25 amp
AC 15 amp

220v DC 8 amp
AC 15 amp

FEATURES



Lid
Internal Safety Switch
Stir Bar
Grind Adjustment Knob
AC/DC Fuse Holder
Sample Adjustment Screws
Amp Meter
Power ON/OFF Switch
Collection Chutes
Variable Speed Control

Sampling Procedures for Mycotoxin Analysis

Proper sampling and sample preparation is the foundation of quality mycotoxin testing. This is the most crucial step in obtaining accurate mycotoxin test results and is very often overlooked. Without a properly obtained and prepared sample, mycotoxin test results will have a high degree of analytical variability.

Please consult your Romer® Labs, Inc representative for a copy of the Romer® Labs' Guide to Mycotoxins, Volume 2 entitled "Sampling and Sample Preparation for Mycotoxin Analysis" This publication outlines the proper procedures for sampling and sample preparation.

The first objective is obtain a representative sample of whole grain, finished feed or meal from rail cars, truck lots, storage bins, or feeding pans and troughs.

A. Sampling Equipment:

1. Manual Sampling:
   - Grain probe or trier (barges, box cars, trucks, hopper containers - see Fig. 1)
   - Bag trier (sacked grains - see Fig. 2)
   - Pelican sampler (sampling grain in a falling stream)
2. Pneumatic or Hydraulic Probes (terminal elevator or processing plant probe)
3. Mechanical sampling systems
   - Diverter-type (automatic sampling of sections or cuts of entire grain flow)
   - Point-type (auger sampling of powdered commodities)

B. Sampling Patterns (large grain carriers, storage bins or troughs):

1. Flat-bottom trucks or trailers containing grain more than 4 feet (1.2 m) deep should use a 7- probe pattern with each trailer treated as a separate load. Flat-bottom trucks or trailers containing grain less than 4 feet (1.2 m) deep should use a 9-probe pattern (Fig. 3)
2. Hopper car (3-compartment, through or door type), insert probe vertically at a 10-degree angle in the center or slightly off center in order to miss the cross beam (Fig. 4)
3. Lift-top and roll-top barges, draw the first probe 4 feet from the stern end of the barge and 7 feet from the side. Take remaining probes at 15-foot intervals to the bow end of the barge. The last probe is taken 4 feet from the box end and 7 feet from the side (Fig. 5)
4. Storage Bins should use automatic pneumatic or mechanical sampling equipment or an adequate probe. If this is not possible, collect 5 probes of feed or meal or 9 probes of whole grain according to the sampling pattern (Fig. 6). Collect about 0.5 lbs. from the bottom of the bin using an auger and combine this with the probed sample. If moisture accumulation is suspected, use the probe pattern (Fig. 7) to collect potentially moist material from the edges of the

bin separately and potentially less moist material from the center of the bin. Transfer the edges-sample and the center-sample to two separate sample bags, close securely and store under dry, cool conditions until analyzed. Label the one sample as "Storage Bin Edges" and the other as "Storage Bin Center".

5. Pans and Troughs
    - Pans in Poultry House: Collect twelve 75 gram grab samples in sample bag, 4 at the first station the feed reaches, 4 at the middle station and 4 at the last station the feed reaches. Fasten bag securely and store under dry, cool conditions until analyzed.
    - Troughs: In the sample bag provided, collect twelve 75-gram grab samples randomly from trough. Take some samples from each section of the trough. Close bag securely and store under dry, cool conditions until analyzed.
6. During Loading or Unloading

    The only practical way to obtain a representative sample from a storage bin is during the loading or unloading process. Either automatic sampling equipment or grab samples can be used. Collect a series of 50 to 100 gram samples, as the grain is being loaded or unloaded. A total of 5 lb. of whole grain and 2 lb. of meal or finished feed should be obtained. Take the first sample as soon as the loading begins and the last one near the end of the loading. Transfer the total sample collected to a sample bag, close securely, and store under dry, cool conditions until analyzed.

C. Proper Sample Size

By taking a sample that is too small, the toxins are either missed completely, or found at much lower levels than truly present. Adequate sample size is important for accurate mycotoxin analytical results:

1. Minimum Sample Size for Corn or Green Coffee: 5 lbs or approximately 2.5 kg
2. Minimum Sample Size for Wheat or Barley: 3 lbs or approximately 1.5 kg
3. Minimum Sample Size for Flour: 3 lbs or approximately 1.5 kg

Manual Probes

Figure I

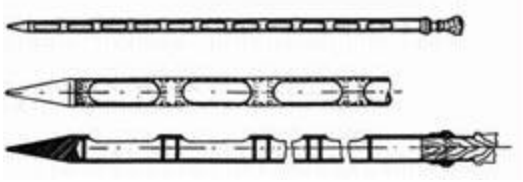
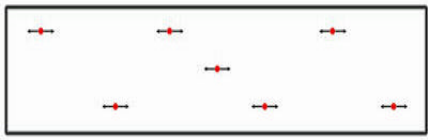


Figure 2

Figure 3 – Flat –bottom trucks or trailers

7-Probe Pattern



9-Probe Pattern

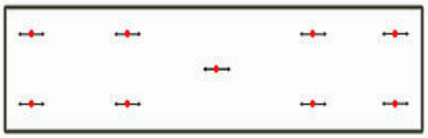


Figure 4 – Hopper Cars

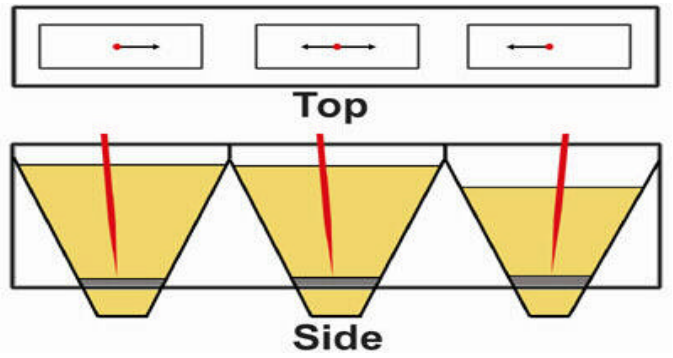


Figure 5 – Lift-top Barges

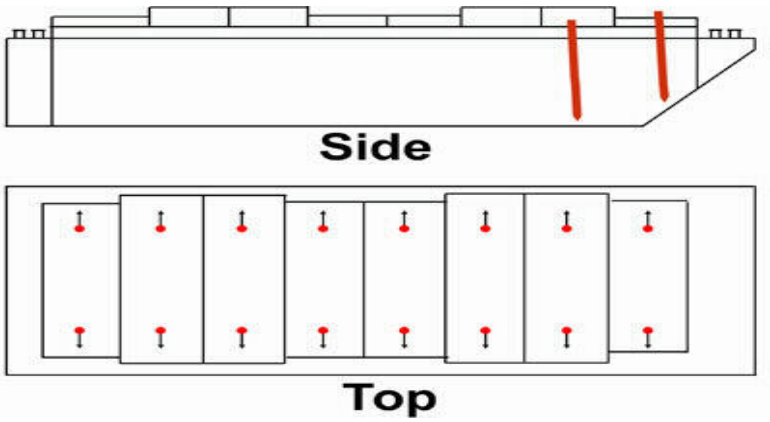


Figure 6 – Storage Bin:

Feed or Meal: 5 – Probe Pattern
Whole Grain: 9 – Probe Pattern

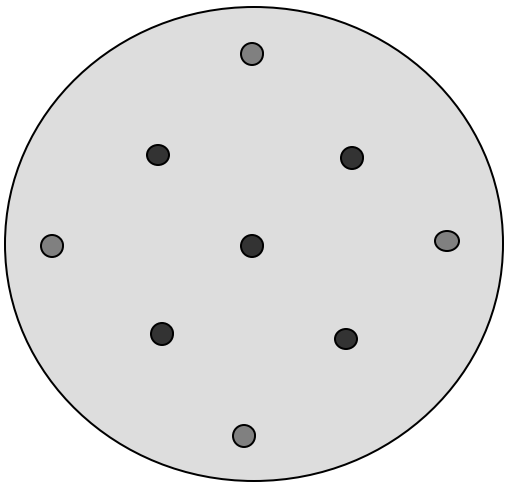
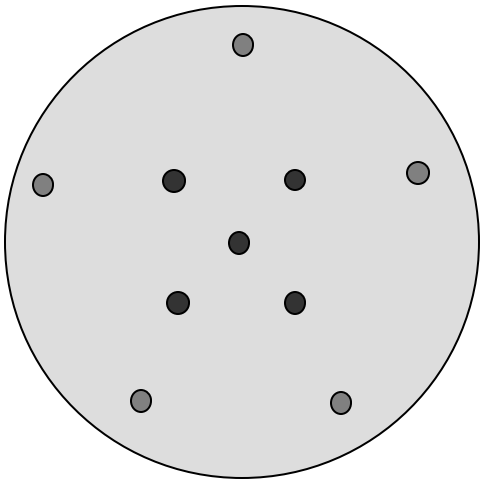


Figure 7 – Storage Bin (Moisture Accumulation)



Technical Service Guide

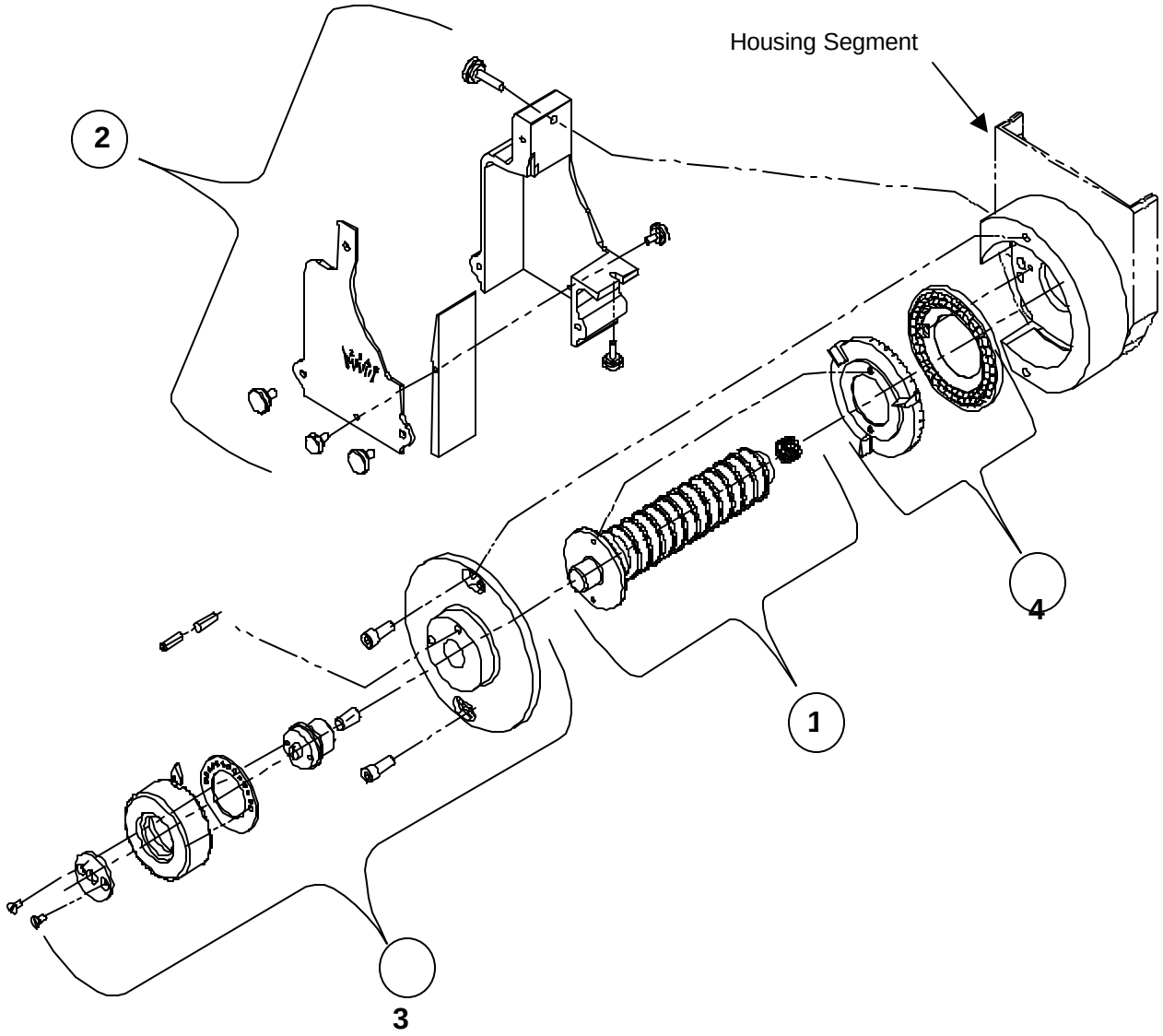
Problem	Corrective Action
Power switch does not light and the mill will not run.	Be sure power cord is plugged in. Check fuses.
Power switch is lit, but the mill will not run.	Be sure hopper lid is closed. Be sure collection chute is securely attached.
Mill runs but product is not being ground.	Check the chute for blockage. Check the burr set for blockage. Check for obstruction in the hopper or grinder housing. The material may be too large for the mill to grind. Burr set may need to be adjusted for a finer grind.
Burrs make grinding noise while running with no sample in the mill.	Adjust burr set. The thrust plug may be worn and need replaced. The tension spring may be worn and need replaced.

If you have questions concerning the mill, please contact Romer® Labs, Inc. at:
1-800-769-1380 or 636-583-8600

Replacement Parts

Part #	Description	Item number
1	Feed worm with bushings	EQMMP1080
2	RAS® Mill chute (Cover, deflector chute, thumbscrews)	EQMMP1070
3	Grinder cap assembly kit (Cap, knob, Plates, Plunger, Spring, pin, screw sets)	EQMMP1090
4	Burr set	EQMMP1040
	RAS® Mill “V” chute	EQMMP1240
	Tension springs (pkg. of 3)	EQMMP2250

Exploded diagram of the grinding assembly in the RAS® Mill.



Warranty

The Series II Mill is guaranteed by Romer® Labs, Inc. to be free of defects in workmanship and materials under normal use for a period of ninety (90) days from the date of purchase by the consumer. Romer® Labs, Inc. designates the right to determine a products warranty status.

All liability of Romer® Labs, Inc. is limited to the repair or replacement of the mill. Under no circumstances is Romer Labs, Inc. liable for consequential damage or loss. Instruments and accessories subjected to misuse, abuse, neglect, modification or unauthorized repair constitute exclusion from warranty.

All warranty claims must be directed to:

Romer® Labs, Inc.
1301 Stylemaster Drive
Union, MO 63084-1156

Phone: (636) 583-8600
Fax: (636) 583-6553

Fax order form

Romer® Labs, Inc.

Please fax your order to: (636) 583 2793

For technical customer service, call toll free:
(800) 769 1380

BILL TO	SHIP TO
Name:	☐ same as "bill to" address
Company:	Name: .....
Address:	Company: .....
.....	Address: .....
.....	.....
Tel:	.....
Fax:	Tel: .....
Purchase order #:	Fax: .....

Method of Payment	Method of Shipping
☐ Bill company (upon approval of credit)	☐ UPS Next Day Air
☐ VISA ☐ Master card ☐ American Express	☐ UPS Second Day Air
Card number: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _	☐ UPS 3 Day Select
Exp. Date: _ _ / _ _	☐ UPS Groundtrac
Signature:	☐ Federal Express, Account #:
	☐ DHL

Item Number	Description	Quantity	Unit Price (US$)

For Romer® Labs, Inc. shipping dept. only

Date shipped: Invoice #: UPS tracking numbers

Shipping Chg.:

Credit card authorization #:

Ref #: Batch#:

ROMER
Romer® Labs, Inc.

Routine Maintenance/ Cleaning Log for the RAS® Mill

Date	Initials	Cleaning Method	Problem	Repair or Maintenance Done

Method #1- Vacuum chutes for 30 seconds per “Cleaning and Care” section of the manual
Method #2- Run 50g of next sample through, prior to grinding sub-sample per “Cleaning and Care” section of the manual