

Number FSIS 19/06 November 2006 (revised 17/11/06)

**SURVEY OF THE PRESENCE OF UNAUTHORISED GENETICALLY MODIFIED RICE
LLRICE601 IN LONG GRAIN RICE IMPORTED FROM THE USA**

Summary

- 31 samples of US long grain rice were taken from eight mills in the UK during a three-week period in September/October 2006.
- Of the 31 samples tested 3 tested positive for the presence of the unauthorised genetically modified rice LLRICE601.
- Where positive samples were identified, the mill in question and its local authority were notified.

This document was revised on 17/11/06 to include the full text of the sampling protocol (Annex 1) and comments provided by Veetee Rice (Annex 2)

Background

Following the accidental contamination of US long grain rice with the non-authorized GM variety, LLRICE601, European Commission Decision 2006/578/EC was published on 24 August 2006. This decision introduced emergency measures regarding LLRICE601 in US long grain rice and included a requirement for all imports of US long grain rice to be certified free from LLRICE601. Member States are also required to take appropriate measures including random sampling and analysis, in relation to products already on the market, and to inform the European Commission (EC) of the results. This Decision was replaced on 5 September 2006 by Commission Decision 2006/601/EC^{1*} which includes the same requirements.

When the LLRICE601 contamination came to light, Bayer CropScience (the company who developed this GMO) provided safety data to the relevant authorities in the United States, including the Food and Drug Administration (FDA). The US FDA has reviewed data related to the safety of LLRICE601 and has stated that it poses no food or feed safety concerns.

An updated version of the safety data was also provided to European Food Safety Authority (EFSA). EFSA's GMO Panel evaluated the data at their meeting in September and concluded that, while the data are insufficient to conduct the full risk assessment that would be required for authorisation of LLRICE601 within the EU, "the consumption of imported long grain rice containing trace levels of LLRICE601 is not likely to pose an imminent safety concern to humans or animals"².

The Food Standards Agency (FSA) carried out this survey to provide information on the presence of this GMO in US long grain rice held at UK rice mills to ensure that further contaminated rice did not enter the food supply chain. The FSA also instructed local authorities to sample batches of rice from a shipment that arrived in the EU after the entry into force of the emergency decision. No GM rice has been authorised for sale in the EU, and in accordance with the GM Food and Feed Regulation (EC) 1829/2003, the sale of any GM rice is therefore not permitted.

* Decision 2006/601/EC has now been amended by Commission Decision 2006/754 of 6 November 2006.

Further information on the background to the contamination of US long grain rice by LLRICE601 can be found in a press release issued by the Food Standards Agency on 1 September³, and in a meeting paper presented to the Advisory Committee on Novel Foods and Processed at their 23 September 2006 meeting⁴.

Methodology

Survey Design

The objective of the survey was to all sample batches of US long grain rice held at UK mills. Information provided by HM Customs was used to identify businesses who had recently imported significant amounts of long grain rice, as identified by the Combined Nomenclature (CN) codes described in Article 1 of Commission Decision 2006/601/EC (Table 1).

Using this information the Agency was able to approach the appropriate local authorities and request that they visited the mills to obtain samples.

The FSA also instructed local authorities to sample batches of rice from a shipment that arrived in the EU after the entry into force of the emergency decision. This shipment, which arrived in the Netherlands on 26 August, consisted of a number of separate barges of rice destined for customers in various member states, including the UK. The Dutch Authorities subjected batches of the shipment to repeat testing and this indicated that some barges contained detectable levels of LLRICE601. As a result the European Commission requested that Member States detain and test rice from all barges from the shipment upon arrival at destination mills.

The majority of the samples were collected over a three week period in September 2006. One barge containing US long grain rice was held offshore for three weeks, which meant that this sample could not be taken until 19 October.

Sampling

The FSA provided a sampling protocol for the local authority collecting officers who took the samples from mills. This protocol is available from the FSA Website and is attached at Annex 1. In summary, collecting officers were asked to take duplicate samples of approximately 1kg for each batch of US long grain rice held at the mills. Where possible, officers were asked to ensure, that each sample contained rice from different areas of the

batch (ie a number of small samples, randomly obtained from throughout the batch were pooled to make each individual sample).

Information was logged on the sample form also attached at Annex 1. The samples were all labelled in a uniform manner, which included the CN codes to identify the form of rice and any processing that may have taken place. One sample was sent to the analyst and the second sample was retained by the Agency in case of dispute. Each sample was labelled with a two letter code of identification, and a unique number.

Table 2 provides details of the samples that were taken. In addition to the 8 rice mills listed, a further 5 premises were visited but no samples were taken either because the premises did not mill or import rice (eg a registered office), or did not handle long grain rice from the US (the Customs data used to identify the premises do not identify the country of origin of the imported rice).

Analytical methodology

The contractor (Eurofins) carried out the approved protocols for preparation and testing of samples for detection of p35S- bar genes sequences and GM event LLRICE601 using qualitative RT-PCR assays, as verified by the European Community Reference Laboratory for GM food and feed⁴. The DNA extract was prepared from 400g sample of ground rice. 5g of the powder was used in duplicate for each DNA extraction.

Eurofins also carried out full Quality Assurance (QA) procedures with 1 reference material QA sample being run for each batch of 20 samples tested.

Quality Assurance,

Eurofins ran one QA sample per sample to ensure that successful DNA extraction had occurred and that there was no PCR inhibition.

Confirmatory Analysis

All samples were run in duplicate.

Analytical Uncertainty

The detection of rice GM events containing p35S and bar gene sequences had a limit of detection of 0.02%.

The LL601RICE event specific test had a limit of detection of 0.02%

Reporting

In line with the Agency's standard practice brand names have been reported in this survey wherever possible. Only two of the samples were collected in the form of packaged rice (samples 14 and 15). All other samples were taken from large bags, or bulk stores of rice held at the mills. In all cases, the mill from which the sample was obtained is listed.

Results

The results are listed in Table 3. Three of the 31 samples collected tested positive for GM rice LLRICE601.

Interpretation

Two of the samples gave clear positive results indicating the presence of LLRICE601. These were samples 16 (MAP Trading) and 21 (Westmill Foods). The results for the third sample (4) (VeeTee) were mixed indicative of the presence of LLRICE601 in the sample at the limit of detection.

Sample 14 (MAP Trading) tested negative for LLRICE601, but had shown a positive result in the p35S- bar screening test. PCR analysis for another type of unauthorised GM rice (LLRICE62) was undertaken and this was also negative. Further tests are under way examining possible sources of the 35S-bar sequences present in this sample, which could be due to traces of materials from other GM crops such as maize or soya that are also detectable using this screening test.

All three samples that tested positive were from milled US long grain rice and these results have been notified to the three mills where the samples were taken and to their local authorities so that appropriate follow-up action can be taken. The mills were given the opportunity to comment on these findings and a statement provided from Westmill Foods is attached at Annex 2.

References

- 1 http://eur-lex.europa.eu/LexUriServ/site/en/oj/2006/l_244/l_24420060907en00270029.pdf
- 2 http://www.efsa.europa.eu/en/press_room/press_release/llrice601.html
- 3 <http://www.food.gov.uk/news/newsarchive/2006/sep/gmricetest>
- 4 <http://www.acnfp.gov.uk/meetings/>

Further Information

Further information on this survey can be obtained from:

[Dr Chris Jones](#)

Food Standards Agency

Novel Foods, Additives and Food Supplements Division

Room [515b](#) Aviation House

125 Kingsway

WC2B 6NH

<Tel: +44 (0) 20 7276 8572>

<Fax: +44 (0) 20 7276 8565>

<Email: chris.jones@foodstandards.gsi.gov.uk>

Table 1 Types of imported rice originating from the US to be sampled in the survey

Combined Nomenclature (CN) number	Product description
1006 20 15	husked (brown) rice Parboiled Long A
1006 20 17	husked (brown) rice Parboiled Long B
1006 20 96	husked (brown) rice Long A;
1006 20 98	husked (brown) rice Long B;
1006 30 25	semi-milled Parboiled Long A;
1006 30 27	semi-milled Parboiled Long B;
1006 30 46	semi-milled Long A;
1006 30 48	semi-milled Long B;
1006 30 65	wholly milled Parboiled Long A
1006 30 67	wholly milled Parboiled Long B
1006 30 96	wholly milled Long A;
1006 30 98	wholly milled Long B;
1006 40 00	broken rice

Table 2 List of samples taken from mills visited by Local Authorities

Mill	Local Authority	No.	Sample ref.	Date collected	Type of imported rice ¹ / processing after import
Veetee Rice Ltd	Medway Council	1	MD001	22/09/06*	A
		2	MD002	26/09/06*	A
		3	MD003	27/09/06	A
		4	MD004	19/10/06*	A
SPL Ltd	Oldham MBC	5	OH001	25/09/06	E (Milled)
		6	OH002	25/09/06	A (Milled)
SB Herba (Vogan & Co Ltd)	South Cambridge DC	7	GO30236402751	22/09/06*	A (Dried 6% & milled)
		8	GO30236402752	22/09/06*	C (Light Processing)
		9	G030231501	26/09/06	F
		10	G030231502	26/09/06	A
		11	G030231503	26/09/06	B
		12	G030231504	26/09/06	B
Tilda Rice Ltd	LB Havering	13	HA001	21/09/06	B
Map Trading	LB Brent	14	BT001	21/09/06	2 kg bags of "PEARL" brand rice
		15	BT002	21/09/06	1 kg bags of "PEARL" brand rice
		16	BT003	21/09/06	From 45kg bag of "PEARL" brand rice
Westmill Foods	North Yorkshire DC	17	NY001	22/09/06*	B
		18	NY002	22/09/06*	B
		19	NY003	22/09/06*	A
		20	NY004	27/09/06	E (Easycook)
		21	NY005	27/09/06	E
		22	NY006	27/09/06	E
		23	NY007	27/09/06	E
		24	NY008	27/09/06	E
		25	NY009	27/09/06	E
		26	NY010	27/09/06	E
		27	NY011	27/09/06	E
Surya Rice or Flying Trade Ltd	Tendring DC	28	TD001	20/09/06	E
		29	TD002	20/09/06	E
East End Foods PLC	Sandwell DC	30	SW01	28/09/06	C
		31	SW02	28/09/06	C

¹ (A) husked (brown) rice Parboiled Long Grain; (B) husked (brown) rice Long Grain; (C) husked (brown) rice Long Grain; (D) semi-milled parboiled Long Grain; (E) wholly milled Long Grain; (F) wholly milled Long Grain; * Additional samples taken at the request of the European Commission (See text)

Table 3 Results of the analysis for the presence of GM Rice LLRICE601

Mill	No.	Sample ref.	Result ¹
Veetee Rice Ltd	(1)	MD001	Negative
	(2)	MD002	Negative
	(3)	MD003	Negative
	(4)	MD004	Positive ³
SPL Ltd	(5)	OH001	Negative
	(6)	OH002	Negative
SB Herba (Vogan & Co Ltd)	(7)	GO30236402751	Negative
	(8)	GO30236402752	Negative
	(9)	G030231501	Negative
	(10)	G030231502	Negative
	(11)	G030231503	Negative
	(12)	G030231504	Negative
Tilda Rice Ltd	(13)	HA001	Negative
Map Trading	(14)	BT001	Negative ²
	(15)	BT002	Negative
	(16)	BT003	Positive
Westmill Foods	(17)	NY001	Negative
	(18)	NY002	Negative
	(19)	NY003	Negative
	(20)	NY004	Negative
	(21)	NY005	Positive
	(22)	NY006	Negative
	(23)	NY007	Negative
	(24)	NY008	Negative
	(25)	NY009	Negative
	(26)	NY010	Negative
	(27)	NY011	Negative
Surya Rice or Flying Trade Ltd	(28)	TD001	Negative
	(29)	TD002	Negative
East End Foods PLC	(30)	SW01	Negative
	(31)	SW02	Negative

¹ Event-specific test for LLRICE601

² Negative for LLRICE601 and LLRICE62, but positive in 35S-bar screening test

³ At limit of detection

www.food.gov.uk



ANNEX 1

FOOD
STANDARDS
AGENCY

Survey on LLRICE601 contamination in US long grain rice

SAMPLING PROTOCOL

All samples should be addressed to:

*** Chris Jones, David Jefferies, Annie-Laure Robin**

NFAS Division
Room 515B
Aviation House
125 Kingsway
London

tel: **0207 276 8572/73/
74**

fax: **0207 276 8564**

WC2B 6NH

* Agency contacts if there are any problems regarding this protocol

This survey is to randomly sample a number of batches of long grain rice originating from the United States to determine the extent of LLRICE601 contamination in rice stocks held at UK mills.

The survey must be carried out by 22 September, and all samples should be forwarded to the Food Standards Agency by 25 September.

Important points to remember

- Please read this sampling protocol before collecting samples
- Information and samples are being collected on an **informal** basis (see 2.1 –2.2).
- Use the sticker template provided to label the samples.
- You should fill in a **separate** form for each sample. (You will need to have made sufficient copies of these in advance).
- A notification letter must be sent to each mill, whether information or an actual sample has been taken.
- Please forward all required information to the Agency at the above address.

General information

1. Organisation of the survey

- 1.1 The sampling protocol for the survey has been compiled by the Novel Foods Supplements and Additives Division of the Food Standards Agency (the Agency). Collection of information or samples may be

undertaken by Enforcement Officers from Local Authority Trading Standards or Environmental Health Departments from a variety of rice mills in the UK. Collection Officers should forward the samples with completed information sheets to the Agency.

- 1.2 Thirteen Local Authorities will take part in the survey. A list of participating LAs and mills that must be visited is given at Annex A.
- 1.3 Collection of samples is expected to be completed by **22 September 2006**. Samples should be received by the Food Standards Agency by **25 September 2006**.

2. Collection of information and samples

- 2.1 The Agency is aware that a number of the mills have already carried out testing of the US long grain rice they hold on their premises. The Agency survey is a separate exercise and samples should be obtained irrespective of whether batches have previously been sampled and tested by the mills.
- 2.2 The testing already carried out by mills is to enable them to operate a positive release system, with only batches that have tested, and been shown to be demonstrably free from LLRICE601 being sent to distributors and retailers. In view of this we do not envisage a need to collect formal samples, however if any mills are not operating a positive release system, then collecting officers may wish to consider taking formal samples.
- 2.3 **Number of samples** Please take **duplicate samples of all batches of US long grain rice** held at each mill. If individual mills hold significantly more than 10 separate batches please contact the Agency for additional guidance.
- 2.4 For the purposes of this survey *each* batch should have a unique batch code or number within the mill, and if there are multiple units with the same batch number then Collecting Officers should view this as a single batch, and sample as described in 2.6.
- 2.5 It is important that each batch sampled should be Long Grain Rice of **US** origin. We anticipate that it should be possible to identify each batch by one of the following Combined Nomenclature (CN) codes, based on the imported material, with an additional indication of any processing that the rice has undergone in the mill.

CN 1006 20 98	Husked (brown) rice Long Grain
CN 1006 30 27	Semi-milled Parboiled Long Grain
CN 1006 30 48	Semi-milled Long Grain
CN 1006 30 98	Wholly milled Long Grain
CN 1006 40 00	Broken rice

2.6 **Size of sample** Each sample should weigh approximately 1kg. Officers are requested to ensure, as far as possible, that samples contain rice from a number of different areas of the batch (e.g. a number of small samples, randomly obtained from throughout the batch should be pooled to make each individual sample). The Agency recognises that obtaining representative samples from large batches held in silos could be problematic and Collecting Officers should contact the Agency if they require additional guidance.

2.7 Each sample should be labelled as set out in Part 7 (below) and Collecting Officers should send all samples to the Agency.

3. Recording of sample information (See also Part 7)

3.1 Collecting officers should complete, *in full*, a separate form for each rice sample taken. Each completed form should be forwarded to the FSA with the samples and one copy should be forwarded to the mill (see 4.2-4.3 below), and a second kept by the LA (see 5.2).

4. Notification of sample collection to retailers / manufacturers

4.1 Collecting officers should notify the mill by means of the Notification Covering Letter (attached at Annex B). The letter should be completed with the name and address of the mill and the date that samples were collected. Copies of completed sample forms should accompany the letter. The letter and accompanying documents may be given to the mill at the time of sampling. If this is not possible, the documents should be sent by first class post on the same day as sample collection or the following working day at the latest.

4.2 The purpose of the notification letters is to provide rice mills with details of the survey, and to provide the FSA contact address should they have any queries. Collecting officers should avoid giving their own contact details when notifying, to ensure that they are not burdened with subsequent enquiries relating to the samples or the survey.

5. Forwarding Sample Information to FSA

- 5.1 Collecting officers should package the samples and forward them with the sample forms to the Agency. The address is given at the beginning of this document.
- 5.2 Collecting officers should also retain copies of the forms until instructed by FSA to dispose of them.

6. Expenses

- 6.1 The Agency will pay £40 per duplicate sample (2x1kg) plus £50 courier costs. The £50 fee will be payable once to cover all samples collected at the mill. If the fee is insufficient to cover the courier costs, (eg see 2.3 above) please contact the Agency.
- 6.2 **Invoices** to cover the sampling costs incurred should be sent to LACORS. The invoices should contain the following information:

Title of Survey - 'Survey of presence of the unauthorised rice LLRICE601 in unmilled American Long Grain Rice'.

- **Project code** G03023
- **Cost Centre** 302
- **Expense Code** 4130
- **The agreed cost per sample** £40 per duplicate sample
- **The code numbers of samples taken (e.g. WL001-007)**
- **The total number of samples collected**

The contact name and address to send the invoices to is:

Sharon Vincent Finance Officer
LACORS
Local Government House
Smith Square
London
SWIP 3HZ

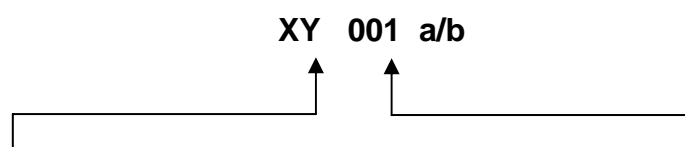
- 6.3 The LACORS contact number if you have any questions is 020 7665 3850

Please submit invoices by 31 October to ensure prompt payment.

RECORDING INFORMATION AND LABELLING SAMPLES

7. Recording of product information

- 7.1 The form attached at Annex C should be completed for each sample. It is imperative that the code that is used to label the samples is also present on the top right corner of the form. For ease, Collecting Officers are recommended to use the labelling sticker templates provided.
- 7.2 Samples should be taken as detailed above. The sample, in bags, should be labelled using the attached labels. The labels should be completed as follows:
- 7.3 Collecting officers must assign a unique Sample Code to each sample. One sticker should be attached to the top right hand corner of the Sample Form and a duplicate sticker fixed securely on the sample itself.



Two letter code – indicates which LA has collected the sample (See Annex A)

Unique number - to denote that this is the nth sample the LA has collected.

a/b designated duplicate sample from the same batch

8. Sample handling, packaging and despatch to Agency

- 8.1 Samples should be sent to the address above to arrive not later than 25 September 2006. Samples should be sent by Courier, or delivered to the Agency in person.
- 8.2 Collecting officers should liaise with the Agency contacts to inform them of when the samples should be expected to arrive

Novel Foods Additives and Supplements Division

September 2006

List of Mills and Participating Local Authorities

	Company	Address	Authority	Code
1.	Veetee Rice Ltd	Neptune Close, Medway City Estate, Rochester	Medway Council	MD
2.	SPL Ltd	Drury Lane, Chadderton, Oldham	Oldham MBC	OH
3.	SB Herba (Vogan & Co Ltd)	(1) Wilbraham Rd, Fulbourn, Cambridge	South Cambridge DC	CB
4.	SB Herba (Vogan & Co Ltd)	(2) Orpington, Kent	LB Bromley	BM
5.	Tilda Rice Ltd	Rainham, Essex	LB Havering	HA
6.	Bestway Milling Ltd	Abbey Rd, Park Royal, London	LB Brent	BT
7.	Indo European Foods	Felixstowe	Suffolk CC	SF
8.	AKA Westmill Foods	The Quay, Selby	N. Yorkshire / Hull & Goole Port Health Authority	NY
9.	Surya Rice or Flying Trade Ltd	4 Europa Way, Harwich	Tendring DC	TD
10.	East End Foods Plc	Kenrick Way, West Bromwich	Sandwell Metropolitan BC	SW
11.	Euro Foods UK Ltd	Reevesland Park Ind Estate, Newport	Newport CC	NP
12.	Freman & Co Ltd	95 Rushdene crescent, Northolt,	LB Ealing	EL
13.	Sadaf Foods (UK) Ltd	Docc Estate, London	LB Haringey	HG

Note:

these companies were identified as having imported significant quantities of long grain rice during 2006, not necessarily from the US. Local authorities were asked to visit and take samples of any batches of American long grain rice held by these companies.

www.food.gov.uk



INSERT ADDRESS HERE

XX September 2006

Reference: NFU 639

UNAUTHORISED GENETICALLY MODIFIED RICE FROM THE US: LLRICE601

Dear Sir or Madam,

The Food Standards Agency is currently undertaking a survey to investigate the presence of the unauthorised GM Rice line LLRICE601 in American Long Grain Rice currently held in UK rice mills.

We are aware that you have recently imported unmilled long grain rice, before the entry into force of Commission Decision 2006/578. This Decision was adopted on 23 August 2006 and requires that all US long grain rice is certified free from LLRICE601 before it enters the EU.

According to Commission Decision 2006/578/EC, the UK is required to carry out sampling and analysis in order to verify the absence of genetically modified rice LL RICE 601 in US long grain rice already imported into the EU.

The Collecting Officer will take duplicate samples. One sample will be sent to the analyst for sampling, and the second will be held by the Agency, in case there is a requirement to carry out a confirmatory analysis.

In line with standard procedures for Agency surveys, a list of all the information and samples collected, as well as the results of the analysis, will be published in due course by the Agency. The list will include details and location of the samples. The results of your samples will be sent to you prior to publication. In case of a sample testing positive for LLRICE601, the operator concerned will have the opportunity to provide a statement for publication with the results,

Should you have any enquiries relating to the survey, please do not hesitate to contact me. If you would like some general information on Food Standards Agency Surveys, full

guidance can be found on our website at:
<http://www.food.gov.uk/science/surveillance/>.

Yours faithfully,

Dr Chris Jones

Novel Foods Additives and Supplements Division

Survey on LLRICE601 contamination in US Long Grain Rice

Please complete a separate form for each sample

Sample ID Code:
Put sticker here

Name of Mill Date of Collection

Address of Mill

Imported Rice Type
(Long Grain)

husked (brown) rice Parboiled Long Grain CN 1006 20 17	A
husked (brown) rice Long Grain; CN 1006 20 98	B
semi-milled parboiled Long Grain; CN 1006 30 27	C
semi-milled Long Grain CN 1006 30 48	D
wholly milled Long Grain; CN 1006 30 98	E
broken rice CN 1006 40 00	F

Lot or Batch code	<input style="width: 100%; height: 40px;" type="text"/>	Date imported / arrived at mill <i>[delete as applicable]</i>	<input style="width: 100%; height: 40px;" type="text"/>
Any other Identification Code	<input style="width: 100%; height: 40px;" type="text"/>	Rice type A-E - see list >> (prior to processing at mill)	<input style="width: 100%; height: 40px;" type="text"/>
Sample Weight (normally 1kg))	<input style="width: 100%; height: 40px;" type="text"/>	Processing in the UK? (eg milled)	<input style="width: 100%; height: 40px;" type="text"/>

Notification letter and copy of this form sent to Mill

**Please fill in the name and contact phone
number of the collecting officer**

Comments:

WESTMILL FOODS

Statement for FSA:

As a responsible supplier, we are keen to ensure that we take all proportionate measures to ensure that all US Long Grain Rice, under our management control, is free from LLRICE601. We have fully co-operated with the authorities throughout the management of this situation and we will continue to do so.

We have fully implemented a testing regime which meets all the requirements of the emergency regulations. Indeed, the batch of rice sampled by the FSA (sample NY005), has previously been tested by a certified laboratory and found to be free from LLRICE601.

In light of these conflicting results, we have traced all affected product and informed those retailers who have received stock packed from this batch of rice; this has enabled them to take appropriate action.

VEETEE RICE

Statement for FSA
(provided on 17/11/06, after publication of the survey report)

We would like to thank the FSA and our local authorities for their support and assistance during the survey. We continue to work closely with our local authorities to ensure that none of the unauthorised rice is introduced into the food chain.

All the USA long grain rice held at our production site was quarantined in lash barges and not unloaded till we received a negative certificate for LL 601 rice. This enabled us to segregate any rice identified as positive for LL601 (such as the sample ref: MD004 published in the survey) and then return it to the supplier concerned.

Rice relating to the sample MD004 has since been arranged to return to the US supplier. None of the above material has entered the Food chain and our local authorities have been made aware of our actions.

We are committed to provide our customers a safe and quality product.