

MHTG Smoked Beer Presentation

Education Meeting for September 19, 2018

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What is Smoked Beer?

Wikipedia: Smoked beer (German: Rauchbier) is a type of beer with a distinctive smoke flavour imparted by using malted barley dried over an open flame.

Smoked Beer Styles:

- Rauchbier (Smokebeer)
- Grätzer/Grodziskie
- Lichtenhainer
- Any Style Utilizing Smoked Malt to Impart Flavor
 - Smoked Porter



Not Exactly...

What do You Mean by 'Smoked Malt'?

The creation of smoked malt has to do with the type of heat used to dry the germinated grain (green malt). While the majority of malt used in modern beer is indirectly dried using air heated through some sort of exchanger, smoked malt uses direct wood or peat fires to provide the heat needed in order to remove excess moisture from the malt. The smoke itself is circulated through the grain. The characteristics of the type of wood or peat used are transferred from the smoke to the grain during this process.

Historically oak, beech, ash, and peat were the most commonly used fuels for the creation of smoked malts.



Peat-fired Kiln at Laphroaig Distillery

What is Smoked Beer?

BJCP Style 32A: Classic Style Smoked Beer

Overall Impression: A smoke-enhanced beer showing good balance between the smoke and beer character, while remaining pleasant to drink. Balance in the use of smoke, hops and malt character is exhibited by the better examples.

History: The process of using smoked malts has been adapted by craft brewers to many styles. German brewers have traditionally used smoked malts in bock, doppelbock, weissbier, dunkel, schwarzbier, helles, Pils, and other specialty styles.

Commercial Examples: Alaskan Smoked Porter, Schlenkerla Weizen Rauchbier and Ur-Bock Rauchbier, Spezial Lagerbier, Weissbier and Bockbier, Stone Smoked Porter



What is Smoked Beer?

BJCP Style 32A: Classic Style Smoked Beer

Characteristic Ingredients: Different materials used to smoke malt result in unique flavor and aroma characteristics. Beechwood, or other hardwood (oak, maple, mesquite, alder, pecan, apple, cherry, other fruitwoods) smoked malts may be used. The various woods may remind one of certain smoked products due to their food association (e.g., hickory with ribs, maple with bacon or sausage, and alder with salmon).

Evergreen wood should never be used since it adds a medicinal, piney flavor to the malt. Noticeable peat-smoked malt is universally undesirable due to its sharp, piercing phenolics and dirt-like earthiness. The remaining ingredients vary with the base style. If smoked malts are combined with other unusual ingredients (fruits, vegetables, spices, honey, etc.) in noticeable quantities, the resulting beer should be entered in the Specialty Smoked Beer.

What is Smoked Beer?

BJCP Style 32B: Specialty Smoked Beer

A Specialty Smoked Beer is either a smoked beer based on something other than a Classic Style, or any type of smoked beer with additional ingredients (fruits, vegetables, spices) or processes employed that transform the beer into something more unique.

What is Smoked Beer?

Brewers Association Style Guidelines: Smoke Beer

- Color: Any beer of any style incorporating smoke, and therefore may range from very light to black
- Clarity: Varies with underlying beer style
- Perceived Malt Aroma & Flavor: Varies with underlying beer style
- Perceived Hop Aroma & Flavor: Varies with underlying beer style
- Perceived Bitterness: Varies with underlying beer style
- Fermentation Characteristics: Any style of beer can be smoked; the goal is to reach a balance between the style's character and the smoky properties.
- Body: Varies with underlying beer style
- Additional notes: Any smoke beer that does not fit other smoke beer categories are appropriately categorized here.
- Numbers: Varies by style.

What is Rauchbier?

Beer Advocate: Rauchbier is an old German beer style with origins in the 1500s from the district of Franconia and the town of Bamberg. Typically dark to amber in color, it shares similarities with Oktoberfestbier. Green malts are dried over an open fire of beechwood, imparting a unique smokiness ("rauch" is German for smoke) to the final beverage. Expect toasted-malt in aroma and flavor, restrained bitterness, low to high smoke flavor, clean fermentation profile, and an attenuated finish.



No, not that Rouch.

What is Rauchbier?

BJCP Style 6B: Rauchbier

Overall Impression: An elegant, malty German amber lager with a balanced, complementary beechwood smoke character. Toasty-rich malt in aroma and flavor, restrained bitterness, low to high smoke flavor, clean fermentation profile, and an attenuated finish are characteristic.

History: A historical specialty of the city of Bamberg, in the Franconian region of Bavaria in Germany. Beechwood-smoked malt is used to make a Märzen-style amber lager. The smoke character of the malt varies by maltster; some breweries produce their own smoked malt (rauchmalz).

What is Rauchbier?

BJCP Style 6B: Rauchbier

Characteristic Ingredients: German Rauchmalz (beechwood-smoked Vienna-type malt) typically makes up 20-100% of the grain bill, with the remainder being German malts typically used in a Märzen. Some breweries adjust the color slightly with a bit of roasted malt. German lager yeast. German or Czech hops.

Style Comparison: Like a Märzen with but with a balanced, sweet, smoky aroma and flavor and a somewhat darker color.

Commercial Examples: Eisenbahn Rauchbier, Kaiserdom Rauchbier, Schlenkerla Rauchbier Märzen, Spezial Rauchbier Märzen, Victory Scarlet Fire Rauchbier

What is Rauchbier?

Brewers Association Style Guidelines: Bamberg-Style Weiss Rauchbier

- Color: Pale to chestnut brown
- Clarity: If served with yeast, appearance may be very cloudy.
- Perceived Malt Aroma & Flavor: In darker versions, a detectable degree of roast malt may be present without being aggressive. Smoky malt aroma and flavor, ranging from low to high, should be present. Smoke character should be smooth, not harshly phenolic, suggesting a mild sweetness.
- Perceived Hop Aroma & Flavor: Not perceived
- Perceived Bitterness: Low
- Fermentation Characteristics: The aroma and flavor of a Weiss Rauchbier with yeast should be fruity and phenolic. The phenolic characteristics are often described as clove, nutmeg, vanilla and smoke. Banana esters are often present at low to medium-high levels. No diacetyl should be perceived. Weissbiers are well attenuated and very highly carbonated.

What is Rauchbier?

Brewers Association Style Guidelines: Bamberg-Style Weiss Rauchbier

- Body: Medium to full
- Additional notes: These beers are made with at least 50 percent wheat malt. They are often roused during pouring, and when yeast is present, they will have a yeasty flavor and a fuller mouthfeel.
- Original Gravity (°Plato) 1.047-1.056(11.7-13.8 °Plato)
- Apparent Extract/Final Gravity (°Plato) 1.008-1.016(2.1-4.1 °Plato)
- Alcohol by Weight (Volume) 3.9%-4.4%(4.9%-5.6%)
- Bitterness (IBU) 10-15
- Color SRM (EBC) 4-18(8-36 EBC)

What is Rauchbier?

Brewers Association Style Guidelines: Bamberg-Style Helles Rauchbier

- Color: Light pale to golden
- Clarity: Appearance should be bright; chill haze should not be present
- Perceived Malt Aroma & Flavor: Malt character is prominent with malt aromas suggesting lightly toasted sweet malted barley. Smoke beechwood character ranges from very low to medium. Smoky aroma should be not harshly phenolic. Sulfur may be present at low levels. There should be no caramel character. Smoke flavor may create a perception of mild sweetness.
- Perceived Hop Aroma & Flavor: Hop aroma and flavor is very low to low, derived from noble-type hops.
- Perceived Bitterness: Low to medium
- Fermentation Characteristics: Fruity-estery and diacetyl aromas and flavors should not be perceived

What is Rauchbier?

Brewers Association Style Guidelines: Bamberg-Style Helles Rauchbier

- Body: Medium
- Original Gravity (°Plato) 1.044-1.050(11-12.4 °Plato)
- Apparent Extract/Final Gravity (°Plato) 1.008-1.012(2.1-3.1 °Plato)
- Alcohol by Weight (Volume) 3.8%-4.4%(4.8%-5.6%) • Bitterness (IBU) 18-25
- Color SRM (EBC) 4-5.5(8-11 EBC)

What is Rauchbier?

Brewers Association Style Guidelines: Bamberg-Style Maerzen Rauchbier

- Color: Pale to light brown
- Clarity: Appearance should be bright; chill haze should not be present
- Perceived Malt Aroma & Flavor: Sweet toasted malt aroma should be present. Medium-low to medium toasted malt sweetness should be present. Aroma and flavor of smoked beechwood ranges from very low to medium. Smoke flavors should be smooth, without harshness. Aroma should strike a balance between malt, hop and smoke.
- Perceived Hop Aroma & Flavor: Hop aroma and flavor is very low to low, derived from noble-type hops.
- Perceived Bitterness: Low to medium
- Fermentation Characteristics: Fruity-estery and diacetyl aroma and flavor should not be perceived

What is Rauchbier?

Brewers Association Style Guidelines: Bamberg-Style Maerzen Rauchbier

- Body: Full
- Original Gravity (°Plato) 1.050-1.060(12.4-14.7 °Plato)
- Apparent Extract/Final Gravity (°Plato) 1.012-1.020(3.1-5.1 °Plato)
- Alcohol by Weight (Volume) 4.0%-4.7%(5.1%-6.0%)
- Bitterness (IBU) 18-25
- Color SRM (EBC) 4-15(8-30 EBC)

What is Rauchbier?

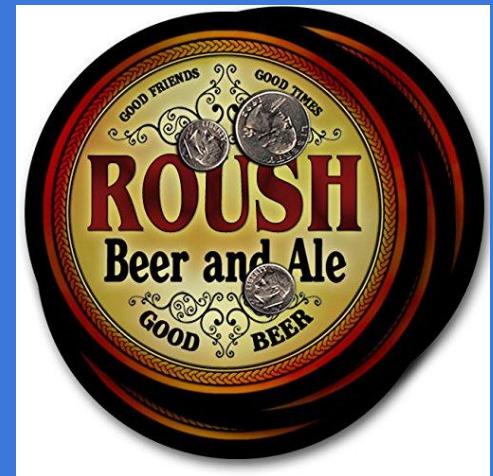
Brewers Association Style Guidelines: Bamberg-Style Bock Rauchbier

- Color: Dark brown to very dark
- Clarity: Appearance should be bright; chill haze should not be present
- Perceived Malt Aroma & Flavor: Medium to medium-high malt aroma and flavor should be present with very low to medium-high beechwood smoke aromas and flavors. Smoke flavors should be smooth, without harshness. Smoke flavor may create a perception of mild sweetness.
- Perceived Hop Aroma & Flavor: Very low
- Perceived Bitterness: Medium, increasing proportionately with starting gravity.
- Fermentation Characteristics: Fruity-estery aromas and flavors, if present, should be minimal. Diacetyl should not be perceived.
- Body: Medium to full

What is Rauchbier?

Brewers Association Style Guidelines: Bamberg-Style Bock Rauchbier

- Original Gravity (°Plato) 1.066-1.074(16.1-18 °Plato)
- Apparent Extract/Final Gravity (°Plato) 1.018-1.024(4.6-6.1 °Plato)
- Alcohol by Weight (Volume) 5.0%-6.0%(6.3%-7.6%)
- Bitterness (IBU) 20-30
- Color SRM (EBC) 20-30(40-60 EBC)



Close, but it's still a 'no'.

What is Grätzer/Grodziskie?

Wikipedia: Grodziskie (Grätzer, Grodzisz) is a historical style of beer from Poland that is typically made from oak-smoked wheat malt. The beer can be described as having a clear, light golden color, high carbonation, low alcohol content, low to moderate levels of hop bitterness, and a strong smoke flavor and aroma. The taste is light and crisp, with primary flavors coming from the smoked malt, the high mineral content of the water, and the strain of yeast used to ferment the beverage. Grodziskie is brewed from wheat malt that has been dried by circulating oak smoke through the grains. The smokiness of the grain and the mineral profile of the water used to brew the beverage gives the style its characteristic flavor.



Grätzer, not Grats-er.

What is Grätzer/Grodziskie?

BJCP Style 27: Historical Beer: Piwo Grodziskie

Overall Impression: A low-gravity, highly-carbonated, light bodied ale combining an oak-smoked flavor with a clean hop bitterness. Highly sessionable.

History: Developed as a unique style centuries ago in the Polish city of Grodzisk (known as Grätz when ruled by Prussia and Germany). Its fame and popularity rapidly extended to other parts of the world in the late 19th and early 20th century. Regular commercial production declined after WWII and ceased altogether in the early-mid 1990s. This style description describes the traditional version during its period of greatest popularity.

What is Grätzer/Grodziskie?

BJCP Style 27: Historical Beer: Piwo Grodziskie

Characteristic Ingredients: Grain bill usually consists entirely of oak-smoked wheat malt. Oak-smoked wheat malt has a different (and less intense) smoke character than German beechwood-smoked barley malt; it has a drier, crisper, leaner quality – a bacon/ham smoke flavor is inappropriate. Saazer type hops (Polish, Czech or German), moderate hardness sulfate water, and a relatively clean and attenuative continental ale yeast fermented at moderate ale temperatures are traditional. German hefeweizen yeast or other strains with a phenol or strong ester character are inappropriate.

Style Comparison: Similar in strength to a Berliner Weisse, but never sour. Has a smoked character but less intense than in a Rauchbier.

What is Grätzer/Grodziskie?

Brewers Association Style Guidelines: Grodziskie

- Color: Straw to golden
- Clarity: Chill haze is acceptable at low temperatures
- Perceived Malt Aroma & Flavor: Oak-smoked wheat malt comprises the entire grain bill. Assertive smoked wheat malt aromas and flavors are medium to medium-high with aroma dominated by oak smoke.
- Perceived Hop Aroma & Flavor: Aroma and flavor of noble hops ranges from not perceived to low
- Perceived Bitterness: Medium-low to medium
- Fermentation Characteristics: Fruity-estery aroma and flavor should be low. Diacetyl and DMS should not be perceived. An overall crisp flavor is achieved by managing fermentation temperatures. Sourness should not be perceived.
- Body: Low to medium-low

What is Grätzer/Grodziskie?

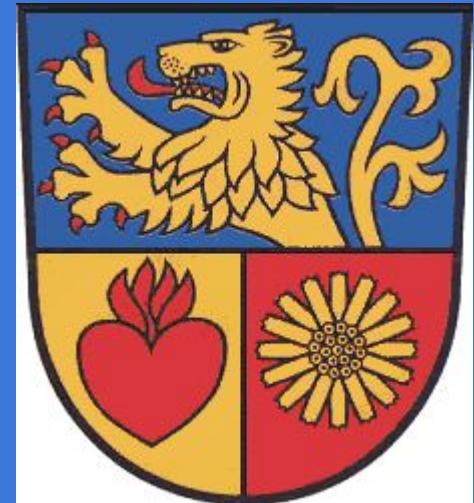
Brewers Association Style Guidelines: Grodziskie

- Additional notes: Grodziskie (also known as Graetzer) is an ale style of Polish origin. Historic versions were often bottle conditioned and highly carbonated.
- Original Gravity (°Plato) 1.028-1.036(7.1-9 °Plato)
- Apparent Extract/Final Gravity (°Plato) 1.006-1.010(1.5-2.6 °Plato)
- Alcohol by Weight (Volume) 2.1%-2.9%(2.7%-3.7%)
- Bitterness (IBU) 15-25
- Color SRM (EBC) 3-6(6-12 EBC)

What is Lichtenhainer?

"Enzyklopädie der technischen Chemie" from 1915:

Lichtenhainer beer is a slight sour, pale beer tasting smokey. It is similar to the Berliner Weisse but has a low level of carbonation. It is produced from smoked barley malt and gets its slightly sour taste not from the main fermentation but develops afterwards through an infection with lactic acid bacteria. These Bacteria are able to grow in the lightly hopped and shortly cooked wort. The beer is turbid most of the time and is drunken fresh before it develops a real sour character. The beer is mostly served from cask.



Lichtenhain Coat of Arms

What is Lichtenhainer?

Franz Schoenfeld - "Obgergärtige Biere und ihre Herstellung":

The Lichtenhainer beer is a slightly sour pale beer. But it has a special taste due to the usage or partly usage of smoked malt. In difference to the Berliner Weissbier it is produced only with Barley Malt. When creating the beer the producers deviate from the old method in order to get better, clearer and more stable beer. So the deviated instead of using unboiled wort to use cooked wort but with a really short boil time. Not much hops are used in order to ensure the souring of the beer or not to delay it.



I don't think that means what you think it does...or does it?

What is Lichtenhainer?

Wilhelm Rommel and Karl Fehrmann - "Die Bierbrauerei" published in 1915 :

Lichtenhainer is also a pale beer brewed from lightly smoked malt, though only barley malt is used. The approximately 8° Plato wort is very lightly hopped and only boiled very briefly and exposed to either a spontaneously appearing or deliberately started lactic acid bacteria infection that gives the beer its weakly sour taste. The mostly young beer, which isn't expected to be clear, is usually served from a barrel.



What is Lichtenhainer?

BJCP Style 27: Historical Beer: Lichtenhainer

Overall Impression: A sour, smoked, lower-gravity historical German wheat beer. Complex yet refreshing character due to high attenuation and carbonation, along with low bitterness and moderate sourness.

History: Originating in Lichtenhain, in Thüringen (central Germany). Height of popularity was towards the end of the 1800s, and was widely available throughout Thüringen. Like a pre-1840 Berliner Weisse.

Characteristic Ingredients: Smoked barley malt, wheat malt, lactobacillus, top-fermenting yeast. Grists vary, but the wheat would typically be 30-50%.

What is Lichtenhainer?

BJCP Style 27: Historical Beer: Lichtenhainer

Style Comparison: In the same general historical lower alcohol top-fermenting central European wheat beer family as Gose, Grodziskie, and Berliner weisse, has elements of all of them but having its own unique balance – sour and smoke is not found in any of the other beers. Not as acidic as Berliner weisse, probably more like a smoked Gose without coriander and salt, or a Grodziskie with Gose-like acidity.

What is Smoked Porter?

Brewers Association Style Guidelines: Smoke Porter

- Color: Dark brown to black
- Clarity: Opaque
- Perceived Malt Aroma & Flavor: Smoked porters will exhibit mild to assertive smoke malt aroma and flavor in balance with other aroma attributes. Black malt character can be perceived in some porters, while others may be absent of strong roast character. Roast barley character is absent to low depending on underlying porter style being smoked. Medium to high malt sweetness, and caramel and chocolate flavors, are acceptable.
- Perceived Hop Aroma & Flavor: None to medium
- Perceived Bitterness: Medium to medium-high
- Fermentation Characteristics: Fruity-estery aromas and flavors are acceptable

What is Smoked Porter?

Brewers Association Style Guidelines: Smoke Porter

- Body: Medium to full
- Original Gravity (°Plato) 1.050-1.065(12.4-15.9 °Plato)
- Apparent Extract/Final Gravity (°Plato) 1.010-1.018(2.6-4.6 °Plato)
- Alcohol by Weight (Volume) 4.0%-7.0%(5.1%-8.9%)
- Bitterness (IBU) 20-40
- Color SRM (EBC) 20+(40+ EBC)

Smoked Beer Examples - Available Tonight

Brauerei Heller-Trum, Bamberg,
Germany: Schlenkerla

- Helles (4)
- Urbock (4)
- Oak Smoked Doppelbock (4)
- Marzen (4)

HaandBryggeriet, Drammen, Norway:
Norwegian Wood (Smoked Ale w/
Juniper) (4)

Birra del Carrobiolo, Monza, Italy:
O.G. 1111 (Smoked Barleywine) (2)

De Dochter van de Korenaar,
Baarle-Hertog, Belgium:
Charbon (Smoked Vanilla Stout)

Vintage, Madison/Sauk City, Wisconsin:
Firebrand (2)

Smoked Beer Examples - Available Tonight

Ommegang, Cooperstown, New York:
Mother of Dragons (Smoked Porter and
Kriek Blend) (2)

Crooked Line, Salt Lake City, Utah:
Tinder Rauchbier

Black Husky, Milwaukee, Wisconsin:
Smoke Monster

Einstock Olgerd, Akureyri, Iceland:
Icelandic Wee Heavy (w/ Angelica Root
& Smoked Icelandic Barley) (3)

Fair State, Minneapolis, Minnesota:
❖ Lichtenhainer

Jason Boynton's Peated Scotch Ale
(Homebrew)

Smoked Beer Examples - Available Tonight

HammerHeart, Lino Lakes, Minnesota:

- Weltenwanderer (Bamberg Style Smoked Lager) (2)
- Dublin Raid (Peat Smoked Red Ale) (2)
- Herbstflagen (Bamberg Style Smoked Marzen Lager) (2)

- ❖ Neandertaler (Smoked Doppelbock)
- ❖ Skoll Och Hati (Mildy Smoked Chocolate Stout)
- ❖ Fimbulvetr (Oak Smoked Wheat IPA)
- ❖ Bog Burial (Peat Smoked Ale w/ Peat Smoked Hops
Aged in Peated Scotch Barrels)



Smoked Beer History

Traditionally, malt was dried using an open flame. Due to this process, many malts, and as a result beer, had smoky flavors. The standard malt for brewing was brown malt.

With the advent of the industrial age (1700s), the use of indirect-fired kiln drying using steam heat driven by coal fed fires resulted in the production of pale malts. These malts are the standard base grains for much of the beer brewed today.

This switch led to many smoked beer styles dying out by the mid 1800s.



Beechwood logs curing at Schlenkerla

Smoked Beer History



The village of Bamberg, Germany (located in the Franconian region of Bavaria) continued to brew beer using smoked malt. Today, the most well known brewery producing smoked beers is Brauerei Heller-Trum, the brewers of Schlenkerla.

Beechwood being fed
into the kiln at Schlenkerla.

Use in Brewing

Smoked malt is generally used as part of the primary grain bill for many smoked beers. It is incorporated into the mash with the other base malts and any specialty malts. In beers where less of a smoked character may be desired, smoked malt can be used as a specialty malt instead of a base malt (peated malts are a good example).

Example Rauchbier recipe via Beersmith:

6 lbs Pale (2 row) malt

4 lbs Smoked Malt (Wyermann)

2 lbs Munich Malt

1.25 lb Caramunich Malt (color and richness)

1.75 oz Hallertauer hops

1 Pkg Oktoberfest/Marzen (White Labs WLP820) yeast



Malting floor at Bowmore Distillery

Use in Brewing

German Rauchmalz is a Vienna style malt smoked over beechwood. This is the defining ingredient for a Rauchbier.

Weyermann Malting in Bamberg, Germany provides much of the world's commercially used Rauchmalz.

The grain bill for a Rauchbier typically includes anywhere from 20-100% smoked malt. Most Schlenkerla rauchbiers are made entirely from smoked malt with no other additives. The malt used for Schlenkerla beers is kilned on site at the brewery.



Smoke-filled kiln at Laphroaig Distillery

Future Education Committee Presentations

Foraged Beer: How to grow/procure your own brewing ingredients and brew your own foraged beer. (March 2019)

Foraged Beer Night: Taste foraged beers from MHTG members. (May or June 2019?)

Suggestions?

Resources

- BJCP Beer Style Guidelines
- Brewers Association Beer Style Guidelines
- “Die Bierbrauerei” by Wilhelm Rommel and Karl Fehrmann
- “Obgergärtige Biere und ihre Herstellung” by Franz Schoenfeld
- “Enzyklopädie der technischen Chemie”
- Beersmith.com
- Morebeer.com
- Craft Beer and Brewing Magazine
- Beer Advocate
- Wikipedia

Prost!

